DOCUMENT RESUME

ED 093 185 HE 004 977

AUTHOR	Baird, Leonard L.; And Others
TITLE	The Graduates: A Report on the Plans and Characteristics of College Seniors.
INSTITUTION	Educational Testing Service, Princeton, N.J.
SPONS AGENCY	Association of American Medical Colleges, Washington, D. C.; Graduate Record Examinations Board, Princeton, N.J.; Law School Admission Test Council, New York, N.Y.
PUB DATE	Mar 73
NOTE	220p.
AVAILABLE FROM	Educational Testing Service, Princeton, N. J. ($2.50)
EDRS PRICE	MF-$0.75 HC-$10.20 PLUS POSTAGE
DESCRIPTORS	Academic Achievement; *Career Choice; *Higher Education; Questionnaires; Research Projects; *Seniors; *Student Attitudes; *Student Characteristics; Undergraduate Study

ABSTRACT

Ninety-four colleges administered the College Senior Survey, a machine-readable questionnaire, designed to investigate the educational plans of seniors (class of 71), attitudes toward work, the college, student backgrounds, feelings about academic performance, college careers, accomplishments outside the classroom, and perceptions of various careers and schools of advanced training. Results are categorized according to students' undergraduate experiences, seniors perceptions of careers and schools, future careers, contrasting plans of men and women, survey data for black seniors, correlates of grades and test scores, and correlates of career choices and financial aid. (HJH)

ED 093185

$2.50

BEST COPY AVAILABLE

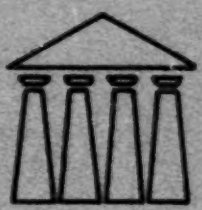
THE GRADUATES

A Report on the Characteristics and Plans of College Seniors

LEONARD L. BAIRD
Principal Investigator

PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY
Educational Testing Service
TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY



with chapters by
MARY JO CLARK
and
RODNEY T. HARTNETT

HE004 977

ED 093185

BEST COPY AVAILABLE

THE GRADUATES

A Report on the Plans and Characteristics of College Seniors

by

Leonard L. Baird

With Chapters by

Mary Jo Clark

and

Rodney T. Hartnett

Educational Testing Service
Princeton, New Jersey

March 1973

The research reported herein was cooperatively sponsored by:

Association of American Medical Colleges
Graduate Record Examinations Board
Law School Admission Council

ACKNOWLEDGEMENTS

A project as large and complex as this one involves the efforts and expertise of many people. Our primary obligation is to the thousands of seniors who completed the College Senior Survey. Without their cooperation, there would have been no project. We are also greatly indebted to the conscientious people who administered the survey at the colleges and to the colleges which were willing to participate in the research.

We wish to thank the groups that inspired and supported this project. The governing boards and officials of these groups provided not only financial support but also provided continuous help and advice on the project. In particular, we would like to thank the members of the advisory committee which provided their advice and assistance for many aspects of the research. These include, from the Association of American Medical Colleges: Ayres G. D'Costa, Associate Director of the Division of Educational Measurement and Research, James B. Erdmann, Director of the Division of Educational Measurement and Research; Frank T. Stritter, (Former) Associate Director of the Division of Student Affairs, and Jack C. Hutton, Jr. (Former) Associate Director of the Division of Educational Measurement and Research; from the Graduate Record Examinations Board: Joseph L. McCarthy, Dean of the Graduate School, University of Washington; Michael J. Pelczar, Vice President for Graduate Studies and Research, University of Maryland; and S. D. Shirley Spragg, Dean of Graduate Studies, University of Rochester; from the Law School Admission Council: Ernest M. Haddad, (Former) Assistant Dean, Boston University School of Law; Frederick M. Hart, Dean of the University of New Mexico School of Law; William D. Popkin, Associate Professor, Indiana University; School of Law.

Within Educational Testing Service, the list could go on for several pages. Those who should receive our special thanks include, from the Programs Division: Robert Altman, Program Director, GRE and GSFLT Programs; Richard L. Burns, Director, College and University Programs; Charles E. Consalus, Secretary, Board of Trustees, LSA Council; Maryann Lear, Assistant Program Director and Secretary to the GRE Board; Winton Manning, Vice President, General Programs; Peter Winograd, Director of Law Programs; and John Winterbottom, Associate Director, General Programs. We thank the staff of the Western Office of ETS for their excellent work with the questionnaires and their distribution and scoring, particulary Inge Chwang, Administrative Assistant; Evelyn Manley, Department Head, Scoring; and Richard Minard, Director, Data Processing. Within the Research Division we wish to thank Alfred B. Carlson, Assistant Director for his help on the endless details; Robert Linn, Division Director; and Samuel Messick, Vice President for Research for their technical advice; Barbara Dynarski, Research Assistant and Inge Stiebritz, Research Assistant for their programming; Miriam Godshalk, Assistant to the Director, College Research Center, for her proofing and table construction; Patricia Hughes, Secretary and, especially Marian Helms, Secretary, and Elizabeth Springsteen, Statistical Typist, for their excellent and endless work.

We wish to thank all these people for their grace and good humor throughout a long and difficult research effort.

Contents

	Page
Acknowledgements	i
List of Tables	iv
List of Figures	vii
Introduction	1
Chapter 1 Development of the Survey and Description of Sample	4
Chapter 2 A Portrait of 1971 Seniors	12
Chapter 3 Students' Undergraduate Experiences	46
Chapter 4 Seniors' Perceptions of Careers and Schools	56
Chapter 5 Deciding About a Future Career	69
Chapter 6 Contrasting Plans of Men and Women	93
Chapter 7 A Closer Look at the Survey Data for Black Seniors	130
Chapter 8 The Correlates of Grades and Test Scores	158
Chapter 9 The Correlates of Career Choices and Financial Aid	174
Postscript: The Class of 1971	201
References	203
Appendix A	210

List of Tables

		Page
Table 1.1	Distribution of Senior Survey Colleges	8
Table 1.2	Means and Standard Deviations of Sample Colleges on Astin's Measures of the College Environment	10
Table 2.1	Highest Degree Seniors Expected to Attain	17
Table 2.2	Educational Plans of Senior Survey Sample	18
Table 2.3	Seniors' Background Characteristics by Plans	24
Table 2.4	Career and Educational Plans of Groups of Students	31
Table 2.5	Students' Self-Ratings of Their Abilities	35
Table 2.6	Importance of Fifteen Work Values to College Seniors	41
Table 3.1	Personal History Data	47
Table 3.2	Seniors' Nonacademic Accomplishments	51
Table 3.3	How Seniors Viewed Their Colleges	54
Table 4.1	Student Perceptions of Five Careers	58
Table 4.2	Student Perceptions of Five Types of Advanced Study	65
Table 5.1	Importance of Ten Sources of Information in Planning Post-Graduate Career	70
Table 5.2	Seniors' Current Financial Condition and Aid Requirements for Advanced Study	72
Table 5.3	Importance of Sources of Financial Support for Graduate or Professional Study	74
Table 5.4	Educational Plans of Students Not Pursuing Advanced Study the Following Fall and Reasons for Not Continuing	77
Table 5.5	Seniors' Applications for Advanced Study and Results of Applications	79
Table 5.6	Importance of Nine Factors in Seniors' Decisions to Attend Graduate or Professional School	81
Table 5.7	Importance of Fourteen Factors in "Helping One's Chances of Acceptance to Graduate or Professional School"	84
Table 5.8	Importance of Twenty-One Factors in Choice of a Graduate or Professional School	88
Table 5.9	Frequency of Experiences in Applying to Graduate or Professional School	91
Table 6.1	Characteristics of Respondents	94
Table 6.2	Expected Activity in the First Postcollege Year	97
Table 6.3	Planned Fields of Graduate or Professional Study in the First Postcollege Year	100

List of Tables (continued)

		Page
Table 6.4	Seniors Who Think It is True That "Women are Discriminated Against by the Admission Policies" in Five Types of Graduate or Professional Schools	103
Table 6.5	Planned Fields of Study by All Seniors Who Expect to Attend Graduate or Professional School at Some Time in the Future	105
Table 6.6	Undergraduate Major Field of Study and Postcollege Plans	107
Table 6.7	Postcollege Study Plans and Undergraduate Majors	110
Table 6.8	Highest Degree Realistically Expected by Sex and Immediate Postcollege Plans	112
Table 6.9	Immediate Plans of Those Who Expect to Earn Each Degree	116
Table 6.10	Plans by Sex and Undergraduate Grade Average	118
Table 6.11	Plans by Sex and Marital Status of Seniors with B+ or A Undergraduate Grade Averages	122
Table 6.12	Plans by Sex and Age of Seniors with B+ or A Undergraduate Grade Averages	124
Table 6.13	Reasons for Not Studying Immediately by Sex, Undergraduate Grade Average, Marital Status and Age	126
Table 7.1	Fathers' Educational Attainment and Parents' Annual Income	132
Table 7.2	Student Descriptions of Their Undergraduate Institutions	134
Table 7.3	Parents' Attitudes About Attending Graduate or Professional School	136
Table 7.4	Importance of Various Factors in Choice of Vocational Field	138
Table 7.5	Highest Degree Expected to Attain	141
Table 7.6	Plans for Autumn after Graduation	143
Table 7.7	Reasons for Not Planning to Attend Graduate or Professional School in the Following Fall	148
Table 7.8	Importance of Various Factors in Decisions to Attend Graduate or Professional Field	150
Table 7.9	Influence of Various Factors on Choice of Specific Graduate or Professional Field	153
Table 7.10	Applications, Acceptance, and Financial Aid Offers for Students Planning to Attend Graduate or Professional School the Following Fall	154
Table 7.11	Experiences in Applying to Graduate or Professional Schools	156

List of Tables (continued)

		Page
Table 8.1	The Correlates of Self-Reported College Grades in Rank Order	161
Table 8.2	Correlates of Scores on GRE-Verbal (Self-Reported)	163
Table 8.3	Correlates of Scores on GRE-Quantitative (Self-Reported)	165
Table 8.4	Correlates of LSAT Scores (Self-Reported)	167
Table 8.5	Correlates of MCAT-Science Scores (Self-Reported)	168
Table 8.6	Summary of the Correlates of Students' Background with Grades and Test Scores	171
Table 8.7	Summary of Correlates of Students' Vocational Choice with Grades and Test Scores	172
Table 9.1	Correlates of Level of Degree Aspirations (Highest Degree Sought)	176
Table 9.2	Correlates of Planning to Work Full Time	179
Table 9.3	Correlates of Planning to Pursue Graduate Work in the Arts or Humanities	182
Table 9.4	Correlates of Planning to Pursue Graduate Work in the Physical and Biological Sciences	184
Table 9.5	Correlates of Planning to Pursue Graduate Work in the Social Sciences	185
Table 9.6	Correlates of Planning to Pursue the Study of Law	187
Table 9.7	Correlates of Planning to Pursue the Study of Medicine	189
Table 9.8	Correlations between Senior Plans and Other Variables	193
Table 9.9	Correlates of Being Offered Financial Aid for Advanced Study	197

LIST OF FIGURES

		Page
7.1	Percentages of Black Students Indicating "Very Important" in Choice of Vocational Field	140
7.2	Postgraduate Educational Plans	144

Introduction

College seniors planning their futures face some of the most critical decisions of their lives. Their choices may largely determine their future incomes, roles in society, life styles, and personal satisfaction. For these reasons alone, the plans and aspirations of seniors would deserve study. But seniors' choices are just as important publicly as they are privately. The social consequences take diverse forms which extend well beyond the individuals who make the decisions (Weisbrod, 1966). Society as a whole needs well-educated people to meet its manpower needs. The nation gathers a return from its investments in colleges through the process of economic growth and increased productivity. Research, technical progress, and advances in scientific knowledge depend on educated people. And, of course, the professions and learned fields need well-trained people to meet their needs.

But it is a mistake to regard college education as valuable only when it adds to earnings and marketable skills. After all, colleges intend to help students be more knowledgeable and to lead better lives. To some degree, colleges are successful. For example, studies have repeatedly found that college graduates seem to have a high sense of civic duty. They are more likely than other people to know about candidates and issues, to vote, and to participate in local government (Campbell, et al., 1960; Key, 1961). Well-educated parents are also "more likely to raise children who recognize the value of education, in terms of job opportunities, as well as in terms of cultural opportunities" (Swift & Weisbrod, 1965). And finally, interest in, and support for, art, music, drama, libraries, books, and other cultural activities would surely dwindle without the concern of well-educated people. For all these reasons, college seniors deserve our close attention.

The research embodied in this report deals with the increasingly important choices of America's college seniors. The research was primarily concerned with the educational plans of seniors, but other areas were also studied. We asked seniors about their attitudes toward work, their college, and themselves. We asked about their backgrounds, their feelings about academic performance, and their college careers. We asked about their college experiences and their accomplishments outside the classroom. And we asked for their perceptions of various careers and schools of advanced training. The results of these questions provide a portrait of college seniors.

The bulk of this report is primarily concerned with postgraduate plans for several reasons. Higher education is charged with the task of preparing men and women for high level occupations. For many of these occupations the bachelor's degree is the most important step. But, for other occupations, some form of postgraduate training is required. The graduate and professional schools, then, are the means by which society attempts to fill complex and difficult roles with competent and well-trained people. The study of the development of career choices thus ties together two concerns of the social psychologist--understanding the individual's choices and analyzing the workings of the institutions of a complex society.

The study of career choices also provides needed information for questions of social policy. Manpower needs, the choices of careers, the conservation of talent, the influence of financial aid--all of these areas require recent information. The special characteristics, plans, and experiences of Blacks and Whites, men and women, also examined here, are also primarily considered in terms of their influences on career plans. This report, then, is primarily concerned with the following questions:

-Who goes on to post-baccalaureate training?

-What kind of students plan post-baccalaureate studies in particular fields?

-What fields attract the top academic talent?

-How do students decide on a career and a specific institution?

-What do students think of various post-baccalaureate institutions and careers?

-How do the plans of men and women differ?

-How do the answers to these questions differ for Blacks and Whites?

To seek answers to these questions the Association of American Medical Colleges, the Graduate Record Examinations Board, and the Law School Admission Test Council joined their research efforts in a project to study the flow of seniors to careers and further education. Educational Testing Service conducted the study. A large scale national survey was administered to seniors in colleges across the country. The subsequent chapters describe the sample, the characteristics of students planning to enter various fields, comparisons of Blacks and Whites, comparisons of men and women[1], and, in general, analyses designed to answer the questions above.

---

[1]Mary Jo Clark's chapter on comparisons of men and women concentrates on their plans. Other analyses, not reported in her chapter because of space limitations, appear in other chapters when they illiminate the discussion of the results.

Chapter 1

DEVELOPMENT OF THE SURVEY AND DESCRIPTION OF THE SAMPLE

How the College Senior Survey was Developed

The first task was to develop a questionnaire that would provide the information we need about seniors. To insure the appropriateness and relevance of the questionnaire items, an advisory committee was formed of two representatives from each sponsoring group. ETS staff members examined related educational, psychological, and sociological research which suggested areas of information that would be useful to the project as well as operational approaches that might be used. Several versions of the survey were reviewed by and discussed by the committee and ETS staff. The questionnaire, the College Senior Survey, was designed as a machine-readable document, using the system developed at National Computer Systems of Minneapolis.

Administering the Survey

While the survey was being developed, a sampling frame of institutions was designed, as described below. Letters of invitation were sent to the presidents of colleges identified from the sampling frame. The number of questionnaires to be sent to each institution was determined by the sampling frame. The institutions used a wide variety of sampling techniques. A few distributed them to seniors in classes. Some called seniors together in special groups. Many mailed them to seniors. Several mailed the questionnaires with appeals from

the student council, sent follow-up letters, and manned collection booths on campus in case the students forgot to mail the surveys back. Interestingly enough, there seemed to be no particular relation between the method used and the response rate. Altogether, some 94 colleges were involved, representing a cross section of American four-year institutions.

Sampling Procedure

The colleges which were sent letters of invitation were selected to be representative of American undergraduate colleges. To accomplish this goal, the sample colleges were selected to match approximately the distribution of all colleges in the United States on several dimensions: region, level of degree offering, enrollment, and type of control. Data about all accredited colleges in the United States offering at least a Bachelor's degree were organized on the computer by level of highest degree offered, control (public, private-independent, and private-religiously affiliated), geographical area, and size. The number of colleges in each cell and the total undergraduate enrollment in each cell were tabulated. These figures indicated that the sample needed to give equal weight to our two interests, i.e., if we used the undergraduate institution as the sole basis for sampling, we would include many very small schools (for example, very small private schools awarding only a bachelor's degree represent 40 percent of the institutions, but enroll less than 10 percent of the students); on the other hand, if we concentrated on sampling the institutions that provide educations to the greatest number of students we would give greatest weight to very large schools (the very largest schools represent only 6 percent of the institutions, but account for 38 percent of the enrollment). Therefore, a combined distribution was developed with the percent of the

institutional total and the percent of the total enrollment in each category. This distribution was used to select a balanced sample. The computer listed all the colleges in each cell, and representative colleges from each cell were chosen, based on the number of colleges that would best represent both institutions and enrollment. The colleges finally selected seemed to represent the diversity as well as the general features of American undergraduate education. A special group of predominantly black colleges was also included to ensure the inclusion of a sufficient number of black students for meaningful analyses. An additional group of colleges was sampled because these institutions, such as selective liberal arts colleges, have been important sources of students entering advanced education. The entire senior classes were included in the smallest colleges, and representative samples of the senior classes were drawn in the larger colleges, so that the analyses of the data using students as a base would not underrepresent students from smaller colleges.

As colleges accepted or declined the invitation to participate, they were recorded and compared with the sampling frame. If a college declined, an invitation was sent to another similar college from the same cell. Initially, some 102 colleges accepted invitations. Four colleges later withdrew; three colleges were sent materials, but were unable to administer them; and one college actually administered the survey, but the difficulties with their administration made its results unusable. A final group of 94 institutions was obtained.

Obtained Sample

Table 1 shows the distribution of colleges that actually administered the College Senior Survey. The table also shows the distribution to be expected

on the basis of the percent of all four-year colleges that actually fall in each cell (because the figures were rounded, the expected number sums to only 99). Overall, the obtained distribution slightly overrepresents Ph.D. level institutions, and slightly underrepresents Bachelor's level institutions. However, the overall fit seems reasonably good. The levels, types of control, and regions are reasonably sampled, and, with the exception of two cells, every specific cell is represented. The representativeness of the sample in terms of institutions produces a skewed sample in terms of students. That is, nationally, most students are enrolled in the largest, predominantly public colleges--more than half in less than 15 percent of the institutions--so that a sample that includes a high proportion of students from small and private colleges will not be representative of students as they are distributed in colleges. However, the sample is probably fairly representative of students who go on to graduate and professional school, since they disproportionately come from smaller colleges.

Another indicator of the representativeness of the sample is the response rate of seniors who were sampled. The colleges were asked to indicate the number of questionnaires they sent out and the number returned in order to determine their response rates. The rates ranged from 85 percent in one college to 18 percent in another, with a median rate of approximately 60 percent.

To study the representativeness of the colleges further, we compared their characteristics with those of all colleges by using the environmental scores provided by Astin (1965). Each of Astin's variables is standardized for all colleges with a mean of 50 and a standard deviation of 10. The variables included five measures of the average characteristics of entering freshmen:

Table 1

Distribution of Senior Survey Colleges

		BA				MA				PhD				Total
		Pub	Pri	Rel	Sum	Pub	Pri	Rel	Sum	Pub	Pri	Rel	Sum	Sum
North Atlantic	E	1	5	6	12	4	5	3	12	2	4	1	7	31
	O	0	3	4	7	3	7	1	11	1	8	1	10	28
Great Lakes and Plains	E	1	4	10	15	3	2	4	9	3	1	1	5	29
	O	3	5	8	16	3	2	3	8	3	1	2	6	30
Southeast	E	2	2	7	11	3	1	2	6	3	1	1	5	22
	O	1	0	4	5	4	2	2	8	4	1	1	6	19
West and Southwest	E	1	2	3	6	3	1	3	7	2	1	1	4	17
	O	1	2	4	7	2	1	3	6	2	1	1	4	17
Sum	E	5	13	26	44	13	9	12	34	10	7	4	21	99
	O	5	10	20	35	12	12	9	33	10	11	5	26	94

Note: E = Expected Frequency
O = Obtained Frequency
B.A.= Bachelor's highest degree awarded
M.A.= Master's highest degree awarded
Ph.D.= Doctorate highest degree awarded

intellectualism, estheticism, socioeconomic status, pragmatism, and masculinity (predominantly percentage of males). Eight other measures focused on college characteristics: selectivity, size, and six "personal orientations"--realistic, intellectual, social, conventional, enterprising, and artistic--based on the proportion of students in each of six classes of major field (Holland, 1966; Holland & Astin, 1961). The results are shown in Table 1.2.

Compared to all four year colleges in the United States, the sample colleges were, on the average, a little larger and a little more selective, and drew students who were somewhat more intellectual and slightly more often from higher status backgrounds. However, these biases seem rather small. Furthermore, the size of the standard deviations indicates that the sample institutions included colleges that varied widely and varied from one another to about the same extent that all American colleges varied from one another. The only possible exception was Estheticism where the standard deviation was 6.99, compared to the average of 10. Overall, then, the sample colleges seem to be a reasonable cross section of American colleges, including a diversity of institutions that represent the variety of American four year colleges on many dimensions.

The sample must also be examined in terms of the extent to which the sample is the best that may be feasible. Seniors have become less and less willing to complete questionnaires. Many are anti-testing and anti-research. And many are simply tired of filling out questionnaires. Some colleges declined to participate in the project because they had found no way--including payment--to get students to complete questionnaires or research instruments. Some participating colleges made considerable efforts to interest students, to impress them with the importance of the project, and to make it easy for them to return their surveys.

Table 1.2

Means and Standard Deviations of Sample Colleges on Astin's Measures of the College Environment

Measure	Mean	Standard Deviation
Intellectualism	53.87	13.49
Estheticism	50.53	6.99
Status	53.40	10.34
Pragmatism	52.19	9.26
Masculinity	51.36	9.53
Selectivity	54.08	11.40
Size	54.51	10.24
Realistic	51.72	9.18
Scientific	52.48	9.07
Social	47.63	8.54
Conventional	52.16	9.59
Enterprising	51.77	9.53
Artistic	49.15	9.00

Even so, some of the colleges making the most strenuous efforts were among the colleges with the lowest response rates. All of this information is anecdotal, and does not at all reduce the need to assess carefully the representativeness of the sample, but it does indicate some of the difficulties in obtaining information about college seniors.

Further analyses of the representativeness of the sample were conducted at a middle-sized state college in the East and a large public university in the South. These analyses showed no large differences between the students who took the survey and those who did not. However at this point, considering the distribution of colleges, it appears safest to say that the sample of approximately 21,000 seniors is reasonably representative of seniors who are oriented to graduate and professional study, but may be somewhat less representative of students who do not plan advanced education.

Chapter 2

A PORTRAIT OF 1971 SENIORS

The class of '71 must be one of the most unusual in American history. It is not that earlier classes faced uneventful times; it is just that the class of 1971 grew up and were in college during years of precipitous change filled with calamity after calamity. Again it is not that change or calamities are new, but each change or calamity now has a more immediate impact. Events enter our homes, campuses, and minds through television and other mass media with a direct personal meaning. And more and more of the crises and changes involve college students themselves. Rather than being observers of the times, college students have become more and more the creators or victims of events.

Almost as long as the students in the class of '71 were aware of the world around them, the nightly news or the special bulletin has announced something to be agitated about, if not agitation itself (see the chart on the next page). The year before they entered high school there were massive civil rights demonstrations and John F. Kennedy was killed. While they were in high school, the United States moved into a full scale war in Vietnam, and there were riots in Watts, Newark, and other cities across the country. As college freshmen they were stunned by the shootings of Martin Luther King and Robert Kennedy, and saw their fellow students at Columbia and San Francisco State try to radicalize their colleges. As sophomores elated by the first men on the moon,

The Times of the Class of 1971

	Personal Events	National and International Events	Events on the Campus
1971	Seniors in College	Unemployment highest in nine years, Harrisburg six indicted, Laos invasion.	Decline in job market for graduate Protests against Laotian war.
1970	Juniors in College	Cambodian invasion, drugs, Mideast fighting.	Kent State, Jackson State, Univ. of Calif., Santa Barbara.
1969	Sophomores in College	Biafra, man on the moon, first Viet moritorium	Many demonstrations Harvard and elsewhere
1968	Freshmen in in College Seniors--H.S.	King, RFK shot, demonstrations at Democratic conventions, Nixon elected.	Columbia and San Francisco State demonstrations
1967	Juniors in High School	First heart transplant, Newark riots, military dictatorship in Greece.	Leveling off of federal funds into universities
1966	Sophomores in H.S.	Great expansion of U.S. involvement in Vietnam	Sit-ins, teach-ins.
1965	Freshmen in High School	U. S. bombs North Vietnam, Watts riots	Higher Education Act of 1965
1964	8th Grade Enter H.S.	Johnson elected, China explodes A bomb.	Berkeley Free Speech Movement.
1963	7th Grade	Washington demonstration for civil rights, JFK killed in Dallas	Influx of large amounts of federal funds for research and building.
1962	6th Grade	Cuban missile crisis, Independence of Algeria	
1961	5th Grade	Gagarin first astronaut, Bay of Pigs.	
1960	4th Grade	JFK elected president, Adolf Eichmann captured	
1959	3rd Grade	Castro becomes premier in Cuba.	Great expansion of Enrollments
1958	2nd Grade	DeGaulle becomes president of France	
1957	Enter school	Little Rock and Sputnick	
1952-1956	Growing Up	First Arab-Israeli war, Supreme Court ruling on segregated schools, Dien Bien Phu, end of Korean war Eisenhower president.	"The Silent Generation" of college students.

they may have been frustrated by the lack of results of the first Vietnam moritorium day, and nauseated by the civil war in Biafra. As juniors they spent a spring of a Cambodian invasion, national guard shootings at Kent State, and police shootings at Jackson State. And as seniors--that is closer to this study and we will discuss the conditions in Spring 1971 in more detail in a moment--these students saw the image of American purity tarnished by My Lai and saw another American invasion, this time into Laos, and may have participated in protests against it.

The object of outlining the history of the class of 1971 is to show how their educational experience must have been affected by changes outside as well as within the classroom. The changes seem to have affected students' approach to education and to careers in at least four ways. First, many of these students, who have lived through a period of hyperbolic change, feel a need to be prepared to cope with change itself. Specific knowledge may seem less critical than the skills necessary to use information, make judgments, and solve problems. Second, the sole emphasis on academic or intellectual learning probably seems less important to many students than the development of human sympathy, aesthetic awareness, and ways to realize and act upon ethical principles. Third, many students see a need to translate classroom knowledge into community and social action. The concerns for equality, ecology, and justice require a great expansion of the classroom into the society. Fourth, and perhaps most fundamental, many students have begun to reexamine the basic purposes of their colleges and educations.

A traditional focus of higher education--preparing the student to fit into a set place in society--has gradually been supplanted by a focus on preparing

the student to direct, change, and serve social needs. We will see the impact of these trends on seniors' career choices throughout this report. While the ever present factors of interest, ability, and experience continue to sway students' choices, the broad influences of social change are also often powerful.

Spring, 1971

The seniors who participated in the research project described in this report were surveyed from late April, 1971 to the middle of June. This was just after the Laotian incursion and Earth week and during a period which saw massive demonstrations for peace in Washington, D. C. coinciding with demonstrations on many campuses, the mass arrests of May Day, the Bobby Seale trial, and the Pentagon papers. There is no way of telling how these events influenced the responses to the survey, but they should be kept in mind when we interpret the results.

A Portrait of the Seniors

Where did these seniors come from? What are their plans? What did they think of their college? What do they value? What do they think of themselves? What do they think of higher education? The answers to these questions are complicated, and it would be misleading to suggest that this project can answer them completely. Still, the information we do have is based on extensive data and sharpens some common answers to the questions and suggests some uncommon ones.

In order to make the best use of such information, however, we need to decide how to analyze it and present it. Since the primary purpose of this project was to study how seniors choose careers, the most useful procedure would seem to be to group students by their postgraduate plans. But students could still be grouped in several ways based on their plans.

One way would be to group students by the highest level of degree they planned to obtain. The difficulty with this scheme as shown in Table 2.1 is that the majority of seniors claim realistically to expect to obtain a post-graduate degree. Twenty percent of all students said they expected only a Bachelor's degree. Even most of the seniors who planned to work (two-thirds of them) expected to obtain an advanced degree. Perhaps the emphasis on education in many occupations led students to think they would obtain an advanced degree some day, if not immediately. Another procedure that would gain more realistic and relevant information seemed to be to group seniors by their plans for the next fall.

Educational Plans

The educational plans of the senior sample are shown in Table 2.2. The top of the table shows the plans of men and women and the total sample. The bottom shows the plans of black and white seniors, and to provide a basis for comparison, the plans of total sample again. The plans of men and women will be discussed in much greater detail in Chapter 6. The plans of Blacks and Whites will be discussed in more detail in Chapter 7. The purpose of including Table 2 is to show the plans of all seniors and the way plans were related to sex and race.

The overall rate of planning to continue further education in the next fall, 38.5 percent, was somewhat higher than the rate reported in the Davis study of 1961 seniors, 31 percent. In contrast to the 24 percent of Davis' sample who indicated no plans for further education only 7.1 percent of our sample indicated no such plans. Some 28.5 percent indicated they had definite plans for further education, and 29.7 percent indicated that they would

Table 2.1

HIGHEST DEGREE SENIORS EXPECTED TO ATTAIN

Degree	All Seniors	Seniors Who Planned to Work	Seniors Who Planned Any Form of Advanced Study
Bachelor's	20	30	1
Master's	51	55	48
Doctorate or Equivalent Professional Degree	28	12	49
Other	1	3	2

Note: All figures are percentages.

Table 2.2

Educational Plans Of Senior Survey Sample

BY SEX

Plan	MEN		WOMEN		TOTAL*	
Continue Further Education The Next Fall	N	%	N	%	N	%
Graduate study in an arts or humanities field	625	5.0	698	8.3	1329	6.4
Graduate study in a biological or physical science field	982	8.0	300	3.6	1288	6.2
Graduate study in a social science field	675	5.5	516	6.2	1199	5.8
Professional study in business	682	5.5	80	1.0	766	3.7
Professional study in law	872	7.1	107	1.2	982	4.7
Professional study in medicine	694	5.6	142	1.7	839	4.1
Professional study in engineering	444	3.6	16	.2	463	2.2
Professional study in education	300	2.4	518	6.2	821	4.0
Professional study in other fields	204	1.7	73	.9	281	1.4
Total Planning Further Study Next Fall	5478	44.4	2452	29.3	7968	38.5
Continue Further Education After Next Fall						
Probably	3393	27.5	2750	33.0	6157	29.7
Definitely	3106	25.2	2786	33.4	5913	28.5
No Plans for Further Education	860	7.0	601	7.2	1469	7.1
Total	12,315		8,333		20,732	

BY RACE

Plan	BLACK		WHITE		TOTAL**	
Continue Further Education The Next Fall	N	%	N	%	N	%
Graduate study in an arts or humanities field	90	8.8	1168	6.2	1329	6.4
Graduate study in a biological or physical science field	40	3.9	1160	6.2	1288	6.2
Graduate study in a social science field	91	8.9	1060	5.7	1199	5.8
Professional study in business	36	3.5	689	3.7	766	3.7
Professional study in law	39	3.8	896	4.8	982	4.7
Professional study in medicine	25	2.4	770	4.1	839	4.1
Professional study in engineering	7	.7	418	2.2	463	2.2
Professional study in education	66	6.5	712	3.8	821	4.0
Professional study in other fields	22	2.2	240	1.3	281	1.4
Total Planning Further Education Next Fall	416	40.7	7113	38.0	7968	38.5
Continue Further Education After Next Fall						
Probably	214	20.9	5100	27.2	6157	29.7
Definately	294	28.7	4185	22.5	5913	28.5
No Plans for Further Education	27	2.6	1225	6.5	1469	7.1
Total	1,023		18,702		20,732	

* 84 Students did not indicate sex

** Includes other ethnic groups and those who did not answer the race question.

probably seek further education. The percentages of seniors indicating various plans add up to slightly more than 100 percent (about 104 percent) probably for two reasons. First, the question about further plans allowed multiple responses so that there is some overlap. For example, 37 students planned to study both medicine and a biological or physical science. The other reason for overlap is that some seniors indicated a plan for further study next fall, and also completed items about reasons for not continuing their study. This logically inconsistent pattern is probably due to misreadings of the items, failure to follow instructions, and the tendency of some students to answer all questions in the survey whether they applied to them or not.

When we look at the distribution of fields of study for the next fall we see that some 18.4 percent of all seniors planned to go to graduate school in one of the branches of arts and sciences, and 20.1 percent planned some form of professional study. The graduate arts and sciences fields are the most popular with law, medicine and education following. Business, engineering and other professional fields account for the remainder. There are some important differences between the plans of men and women and between Blacks and Whites. Men were half again as likely to plan to continue further education in the next fall. Men were also considerably more likely than women to plan to study a biological or physical science, business, law, medicine, engineering and other professional fields. Women were more likely than men to plan to study arts or humanities and education. Interestingly, the proportions of men and women indicating no plans for further study were about the same. The plans of men and women are considered in much greater detail in Chapter 6.

Overall, Blacks planned to go to further education in the fall slightly more often than Whites, and they indicated no plans for eventual further education less often than Whites. Blacks were more likely than Whites to plan to study social science, education and other professions. Blacks were less likely to plan to study biological or physical science, medicine and engineering. To some degree these differences may be due to the fact that the majority of Blacks in the sample were women. The plans of Blacks and Whites are examined more closely in Chapter 7.

Basic Analysis Groups

The basic structure used to study the plans of seniors in the rest of this chapter and through Chapter 5 is based on students' plans for next fall. Specifically, the study used students' plans for the next fall to work, be married, enter the military, pursue graduate study in the arts or humanities, pursue graduate study in the biological or physical sciences, pursue graduate study in the social sciences, study law, study medicine, or study other professions. These plans were utilized for several reasons. First, these plans are relatively realistic. They are not based on hoped for educational pursuits some time in the future. They are clear expressions of plans for the next year; in fact, a majority of the students indicating that they planned further study also indicated that they had been accepted by one or more institutions. Second, the plans for next year are close enough to seniors' present educational careers to be related to them in meaningful ways. Finally, the categories that are used are educationally and socially meaningful. They are not so fragmented as to make generalizations invalid. There were also a sufficient number of seniors in each category to allow certain analyses to be performed. Although the focus of this

study is on educational planning and educational experiences, it also seemed important to distinguish among students who planned to work, marry, or enter the military.

The item on which this grouping of students by plans was based allowed them to indicate more than one activity, so there is some overlap in the groups. For example, a student who planned to be married in June and go to law school in September would appear in both the marriage group and the Law School group. The extent and implications of this overlapare discussed in Chapter 6. The overall overlap rate was about twenty percent. Most seniors planned only one activity but one group, "marriage" overlapped considerably with the other groups, particularly "work." This fact should be kept in mind throughout this report.

Thus the plan categories that will be used in Chapter 2 through 5, and the numbers and percent of students in each category were as follows:

Group	Definition	N	%
Work:	Seniors who planned to work full time at a job, whether or not they expected to make it their career.	12,803	61.8
Military:	Seniors who planned to enter the military either temporarily or as a career.	1,933	9.3
Marriage:	Seniors who planned to be married	2,747	13.2
Graduate study:			
Arts or Humanities	Seniors who planned such study.	1,329	6.4
Biological or Physical science	Seniors who planned such study.	1,288	6.2
Social Science	Seniors who planned such study.	1,199	5.8
Law School:	Seniors who planned to go to law school.	982	4.7
Medical school:	Seniors who planned to go to medical school.	839	4.1
Other professional schools:	Seniors who planned to go to graduate or professional schools of business, engineering, education, social work, architecture, or dentistry.	2,331	11.3
Total N (without overlap)		20,732	

The results in the rest of this report are organized around these groups. The first analyses describe the backgrounds and personal characteristics of the students. These results are presented first so that we can better understand seniors' choices. Then specific information of how and why students chose their fields will be presented. The plans of men and women will then be compared. Black and White students will be compared. Finally, using all of this information, the correlates of choosing the fields, the correlates of academic and test performance, and the correlates of obtaining financial aid will be presented. First, we shall try to answer the question "Who are these students?".

Where Did They Come From? - The Importance of Background

A student's "background"--sex, race, religion and social class--has an effect on his or her plans for higher education. Social scientists have found "...enormous differences in educational opportunities among the various socioeconomic groups and between the sexes. These differences are great regardless of what socioeconomic indices are used and regardless of how restrictively or broadly opportunity for higher education is defined..." (Sewell, 1971). The effects of "background" can be seen in students' probability of attending college, the types of college they attend, the majors they choose, the college residences they live in, the way they adjust to college, the time they take to graduate, and whether they will withdraw or not. (This evidence is reviewed in Feldman and Newcomb, 1969, and Baird, forthcoming.) Studies of postgraduate choices (Davis, 1965; Miller, 1963; Astin & Panos, 1969) have also shown that students' backgrounds continue to affect their decisions, although the size of the effect is much less than the effect on the probability of college

attendance. As Davis notes, that they appear at all after four years of college experience "...is a wry tribute to the influence social groupings have on individual decisions."

This study found that three kinds of background characteristics were related to postgraduate plans--personal characteristics, such as sex and race; parental characteristics, such as family income; and academic characteristics, meaning grades. The results are shown in Table 2.3. For simplicity, as in other tables throughout this report, the percentages not responding to a question are not shown.

The distribution of men and women among the groups illustrates well-known, if often criticized, differences. Most students planning to study the professions and physical sciences are men. Social science is less heavily male, and in arts and humanities, the proportion is about fifty-fifty. Unsurprisingly, men are more likely to plan to enter the military service and women are more likely to plan to marry. Work was planned by about as many men as women. The important point is that the majority of students who planned to attend graduate or professional schools were men, while about half of those planning to work were women. More detailed analyses of the influence of sex on plans will be presented in Chapter 6 by Mary Jo Clark.

About 90 percent of the total sample was white, and no field differed very much from that figure. Blacks were slightly more likely to be found among students planning to work, study the arts or humanities, or study social science. Blacks were slightly less likely to plan to enter military service, study a biological or physical science, or study medicine. These differences may be partly due to the fact that the majority of Blacks in the sample were women. The "other" category was ambiguous. It included very few Chicanos,

Table 2.3

Seniors' Background Characteristics by Plans

Characteristic	Post-Graduation Plans									
	Work	Military Service	Marriage	Grad. Arts Humanities	Grad. Bio. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total
Sex										
Male	51	97	39	47	76	57	89	83	70	59
Female	49	3	61	53	24	43	11	17	30	40
Race										
Black	5	2	4	6	3	7	4	3	5	5
White	91	94	92	89	90	89	91	92	89	90
Other	4	4	4	5	7	4	5	5	6	5
Marital status										
Single	72	76	75	81	78	76	84	87	73	75
Married	27	24	25	17	22	22	25	12	26	24
Divorced; Widowed	1	1	1	1	1	2	1	1	1	1
Father's education										
Less than high school diploma	24	22	19	19	17	19	12	13	20	21
High school	28	29	26	22	25	21	22	19	25	26
Some college	17	18	19	20	17	19	19	17	18	18
College graduation	16	17	17	17	19	19	22	22	19	17
Graduate or professional degree	14	13	18	22	21	22	25	29	16	17
Mother's education										
Less than high school diploma	18	15	14	14	12	15	7	8	15	16
High school	40	42	38	32	38	35	33	32	40	38
Some college	20	22	24	24	22	23	25	25	19	21
College graduation	16	15	19	19	19	17	25	23	18	18
Graduate or professional degree	5	5	6	10	9	10	9	11	8	7
Family income										
Less than $5,000	7	5	5	6	5	6	3	3	6	6
$5,000 to $7,999	10	11	9	8	11	8	5	5	8	9
$8,000 t $11,999	22	26	21	21	21	19	14	11	20	21
$12,000 to $19,999	25	30	27	23	29	27	25	25	26	26
$20,000 or more	21	20	24	25	22	26	40	37	26	23

Table 2.3 (cont'd)

	Work	Military Service	Marriage	Grad. Arts Humanities	Grad. Bio. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total
Father's feeling about advanced work										
Discouraged	2	1	1	2	1	2	1	1	2	2
Neither encouraged nor discouraged	47	45	44	31	30	32	22	19	32	41
Encouraged	35	40	40	55	61	56	72	75	56	44
Mother's feeling about advanced study										
Discouraged	2	1	2	2	1	1	1	1	2	2
Neither encouraged nor discouraged	48	45	44	31	31	29	23	19	34	42
Encouraged	39	43	43	63	65	64	74	78	60	47
Friends' feeling about advanced study										
Discouraged	2	1	2	2	1	2	2	1	2	2
Neither encouraged nor discouraged	51	47	49	36	37	33	33	33	39	46
Encouraged	35	40	38	57	58	62	61	64	54	42
Religious background										
Raised as Protestant	57	60	59	51	54	51	41	48	51	55
Raised as Roman Catholic	27	29	25	26	23	25	31	26	27	26
Raised Jewish	5	2	6	10	8	12	20	18	10	7
Raised other	11	9	10	13	15	13	8	8	12	12
Grades--all courses										
D+	1	1	1	0	0	0	0	0	0	1
C	12	16	8	4	4	1	5	1	7	10
C+	34	36	29	21	18	21	20	12	27	29
B	31	27	32	34	31	34	33	30	35	31
B+	16	13	21	28	28	28	27	34	20	20
A to A+	4	5	7	11	18	11	13	21	8	7
Grades--major field										
D+ or lower	0	1	0	0	0	0	0	0	0	1
C	6	8	4	1	2	2	2	2	4	5
C+	15	21	12	7	9	6	8	7	12	13
B	34	34	31	23	24	25	28	23	30	31
B+	30	23	32	34	30	37	35	34	32	30
A or A+	14	12	20	34	35	30	26	35	20	19

Note: All figures are percentages.

Puerto Ricans, or other students from Latin-American backgrounds. Instead it included oriental Americans, "others," those who gave no response, and a few white students who mistakenly referred to themselves as "Native American or Indian." A comparison of black and white students, presented in Chapter 7, shows many differences between ethnic groups, but the differences in plans are not as large as one might expect. These results are consistent with the data presented by Bayer and Boruch (1969) and Fisher (1967).

Most of the seniors were single, although students who planned to work were a little more likely to be married, and students who planned to study law or medicine were a little more likely to be single.

The socioeconomic status (SES) of students' families, as measured by parental education and income, was related to students' plans. On each measure, students who planned to work, marry or enter the military service tended to come from relatively low SES families, prospective graduate students from slightly higher SES families, and prospective law and medical students from the highest SES families. This general pattern of differences also held for men and women in the various plan groups, except that, as shown by other analyses too detailed to report, women generally come from slightly higher status backgrounds. There were two deviations from this pattern. The women who were attracted to medicine tended to come from slightly lower status backgrounds than did the men. The parents of the women planning to attend law school tended to be better educated than the parents of the men, but tended to have slightly lower incomes. It is easy to see that the capacity of families to support their children would be related to their educational careers and that well-educated parents would have high expectations for their children. In fact, one might have expected the differences to be even greater considering the importance of these variables at earlier education decision points (e.g., Sewell, 1971).

Beyond parental income and education, the degree of family encouragement of advanced study was strikingly different for students with different plans. Compared to other students, the seniors who did not plan to continue to advanced study were less often encouraged to go on by their parents. The students who planned to go to graduate school reported considerably more encouragement, and students who planned to study law or medicine reported even more encouragement. A basically similar pattern was found for the encouragement of friends, except that prospective law and medical students reported no more encouragement than other graduate or professional school students. This pattern also generally held for men and women within the plan groups, except that women planning to enter medical school reported less parental encouragement than their male counterparts, and women planning to enter law schools reported more encouragement from their friends. Parental encouragement has, of course, been found to be important in such studies as Bandura (1960), Herriott (1963), Boyle (1966), Rehberg and Westby (1967), Sewell and Shaw (1968a, b), Kandel and Lesser (1969), and Sewell, Haller, and Ohlendorf (1970). Families which encourage aspirations and achievements seem to be characterized by particular child-rearing practices and family structures (this research is reviewed by Rehberg, Sinclair & Schafer, 1970). The effect of family encouragement seems to remain even after ability and SES are controlled. The evidence for peer encouragement suggests it has less influence on students' plans, but it remains a consistent influence (Boyle, 1966; McDill, et al., 1967; Turner, 1966; Meyer, 1970).

The influence of religion on personal behavior has been studied at least since the time of Max Weber and Tawney. Early studies suggested that religion strongly affected educational and occupational attainment. More recent studies have found less effect from religious background after initial ability and

SES were controlled (Featherman, 1971, has recently reviewed this research). Most of the early studies were concerned with differences between Protestants and Roman Catholics. The recent studies have found small differences between people from these religious backgrounds (see, for example, the review of Jackson, Fox, & Crockett, 1970). However, recent studies have also found consistent, if not large, tendencies for Jews to enter certain careers such as law (Featherman, 1971). As shown in Table 2.3, this study also found that the percentages of students from different religious backgrounds varied from field to field. Students who were raised as Protestants were most often found among the students not planning further education and least often found among prospective law students. Roman Catholics were represented to about the same degree in all groups. Jewish students were less likely to be found among students who planned to work, marry or enter the military service, and more likely to be found among students who planned advanced study, particularly in law and medicine. Women planning a medical school career, compared to the men, were raised less often as Jews and more often as Protestants. The high status career choices of Jewish students have been attributed to their higher intelligence test scores, ability to defer gratification, and higher need for achievement. In addition, according to Lipset and Bendix (1959), "Jewish family structure is of the type which is regarded as favoring personalities with capacity for mobility...the strong mother and weak father family... [with a]...strong drive to learning...probably strongly related to the positive value which they give to religious education." Featherman (1971) has presented evidence which makes this "personality" explanation less certain. In any case, the evidence for higher educational attainment by Jews is fairly consistent. The influence of religious background will be examined again in the chapter on the correlates of career choices.

Data about grade point averages are presented here as a reminder of the strong relation between academic success and educational plans. We should recognize the importance of sex, religion, etc., but should not overemphasize their importance compared to the importance of grades. Academic performance is obviously related to graduate admission. Students who planned some form of advanced education clearly got better grades than students who did not plan advanced education. The best grade getters seem to be students who planned to enter medical schools or graduate departments of biological or physical science. Consistent with much earlier research, women within the plan groups tended to have received higher grades, the difference being particularly large among prospective law students. The only exception was among prospective medical students, where the men reported higher grades than the women.

It should be noted, however, that if we look at the absolute numbers of students with various grades we find almost as many students with averages of B+ or better among those who were not pursuing advanced education as among those who were. To some this may appear to be "lost talent." However, as Baird and Holland (1969) have argued, there are many kinds of talent, and, in any case, it is probably beneficial to have some bright people in every area.

In the last analyses we concentrated on the senior's plans, showing the percentage of each plan group with each characteristic, such as the percentage of all those planning to work who were men. In the next analyses we concentrated on seniors' characteristics studying the plans of students with various characteristics, such as the percentage of all men who planned to work. The results, shown in Table 2.4 show some striking trends. When we compare men with women, we see that women were more likely to plan to work,

about as likely to plan to go to a graduate school, and much less likely to plan to go to a professional school. Even including education over twice as many of the men planned to attend a professional school (26.0 percent for men versus 11.2 percent for women). These differences will be explored in greater detail in Chapter 6, but the point remains that there are sizeable differences in the plans of men and women. The results on ethnic groups, discussed more later in Chapter 7, are also striking, although they might surprise some people. Whites were the least likely to plan to go on to some form of postgraduate education (38.0 percent when all are added together), Blacks a little more likely (40.7 percent), Orientals much more likely (58.4 percent), and Spanish-speaking students most likely to plan to go on (60.2). The Orientals seem quite attracted to the biological and physical sciences and engineering. Business holds an appeal for Spanish-speaking seniors. It is difficult to judge the realism of these aspirations, but it seems unlikely that all the students who planned to go on to further study will actually do so.

The next two analyses show the effects of social class. Students whose fathers had less than a high school diploma were more likely to plan to work on a career job than students whose fathers had advanced degrees. The influence of fathers' education appeared to have its most pronounced effect in plans to attend law or medical school. Similar trends hold when we look at the plans of students from families that differed in wealth. The difference was that students from relatively poor and wealthy families planned to attend graduate school to about the same extent. The richer students were more likely to plan to attend a professional school and less likely to plan to work. To some degree these differences may be due to the wealthier families' ability to pay the tuition of professional schools, but it is probably also due to their interest in the well-paying professions.

Table 2.4

Career and Educational Plans of Groups of Students

	Career Work	Non-Career Work	Military Service	Marriage	Grad. Arts Humanities	Grad. Biol. Phys. Sci.	Grad. Soc. Science	Law School	Medical School	Other Prof. Schools
By Sex										
Men	30.7	21.8	15.2	8.6	5.1	8.0	5.5	7.1	5.6	13.3
Women	48.7	26.9	.5	20.1	8.4	3.6	6.2	1.3	1.7	8.2
By Ethnic Group										
Black	44.5	25.8	4.4	11.7	8.8	3.9	8.9	3.8	2.4	12.9
White	37.8	23.7	9.6	13.5	6.2	6.2	5.7	4.8	4.1	11.0
Oriental	24.3	22.8	11.7	7.3	11.2	12.6	4.9	2.9	4.9	21.9
Spanish-Speaking	27.3	25.4	8.0	9.1	8.0	9.5	8.3	8.3	6.8	19.3
By Fathers' Education										
Less than H. S. grad.	49.5	21.5	9.8	11.7	5.6	5.0	5.2	2.5	2.5	10.9
H. S. grad.	42.2	23.5	10.3	13.2	5.3	5.9	4.8	4.0	2.9	10.9
Some college	37.4	23.9	9.4	14.5	7.2	6.0	6.2	5.2	3.9	11.5
College grad.	30.6	25.1	9.3	13.3	6.3	6.8	6.2	6.0	5.2	12.5
Post grad.	24.8	25.7	7.2	14.2	8.4	7.9	7.5	7.0	7.0	10.7
By Family Income										
Less than $5000	47.5	22.1	7.6	10.1	6.1	5.6	6.3	2.2	2.2	11.6
$5,000-7,999	45.6	23.5	10.5	12.5	5.4	7.1	4.6	2.7	2.2	10.3
$8,000-11,999	41.8	22.5	11.5	13.3	6.4	6.3	5.3	3.2	3.3	10.7
12,000-19,999	36.5	24.6	10.7	13.8	5.7	7.0	6.0	4.6	4.0	11.4
20,000 or more	28.4	25.2	8.0	13.3	6.7	5.8	6.4	8.1	6.3	12.1
By Religion										
Protestant	39.6	24.3	10.1	14.2	6.1	6.1	5.4	3.5	3.5	10.5
Roman Catholic	39.3	24.2	10.7	12.9	6.5	5.6	5.5	5.7	4.1	11.6
Jewish	22.8	20.0	2.2	10.2	8.9	6.7	9.5	12.9	9.9	15.3
Other	40.4	20.3	7.7	13.5	6.0	6.8	6.1	3.0	2.6	10.9
None or no formal	28.8	29.7	5.9	9.9	7.3	10.0	6.3	4.0	3.7	12.7
By Grades										
C or lower	47.1	28.9	14.8	11.0	2.4	2.2	2.3	2.5	.5	8.4
C+	45.1	26.4	11.3	13.1	4.6	3.8	4.1	3.2	1.7	10.6
B	36.9	24.3	8.2	13.7	7.1	6.1	6.4	5.1	4.0	12.6
B+	30.5	20.6	6.3	14.3	8.9	8.9	8.1	6.5	6.9	11.6
A to A+	20.4	13.0	6.4	13.1	10.0	15.5	8.8	8.6	11.5	12.6

Note: All figures are percentages.

We have already mentioned the research on religious background and see how the percentage of various groups differ in religious persuasion. Now, looking at the plans of religious groups we see that they are quite different. Protestants and "others" were least likely to plan postgraduate educations, and Jews the most likely. In fact, Jews were over twice as likely as Protestants to plan to go to some professional school and about three times as likely to plan to go to law or medical school. The attraction of the professions for Jews has been attributed to the historic barriers to Jews in many areas, to strong status needs, etc. As Featherman has pointed out the most plausible explanation is a general cultural one.

Finally, the differences between the students with different backgrounds are less than the differences between students with different grades. The students with the highest grades are three and a half times as likely as the seniors with the lowest grades to plan advanced study.

Summary. As students approach the end of college, they bring their homes, peers, and backgrounds with them. The results in this section emphasize that students with different plans have different backgrounds. Many of the background variables, particularly sex, race, and family income would ideally have no influence on students' plans. That they apparently do is an indication of how education cannot overcome all differences.

It is also instructive that, with all the changes in the country and higher education, the seniors with different choices look very much like the seniors of ten years ago that Davis (1965) and Sharp (1970) studied. Then, as now, law students were recruited from the better off, the Jewish, etc. (Warkov & Zelen, 1965), biological and physical science graduate students from men, etc. The basic similarities make one wonder how much change there really has been. Each field seems to be getting the same kind of students it got ten years ago.

How Do Students Describe Themselves?

A good deal of evidence about the importance of one's conceptions of himself or herself suggests that we tend to behave in a manner consistent with our own ideas of what we are like. The tendency may be especially strong in the area of abilities. Self-concepts seem to be highly related to achievement in college (Holland & Astin, 1962; Baird, 1969b).

Students who later achieve high grades, hold college offices, write for the college newspaper, win prizes in art, write scientific articles, etc., perceive themselves as having ability in the areas involved. Achievers know their own talents and claim that achievement in the area of their talents is important to them. Although we can't explain everything about achievement, this suggests that high-level accomplishment is based on a history of activity in a given area in which dispositions, skills, and aptitudes are acquired and developed.

This interpretation is consistent with the results obtained by a number of investigators of such noncollege groups as creative adolescents (Schaffer & Anastasi, 1968) and creative research scientists (Taylor & Ellison, 1967). The achiever has a history of activities and achievements related to his present achievement. He is motivated to achieve in this area and accurately assesses his own talents.

Self-evaluations are also related to continuing or beginning to achieve at the college level (Baird, 1969a). There is also evidence that self-evaluations are related to the vocational choices of college students (Holland, 1962, 1963, 1964, 1968) and their vocational interests (Baird, 1970a). Changes in self-evaluations have been related to different college environments and to student accomplishment in college (Skager, Holland, & Braskamp, 1966).

These research data indicate that self-evaluations have pervasive relations with a wide variety of other variables. And these pervasive relations might be

expected, for in other research the self-concept has been shown to be strongly tied to one's sense of self-worth, what one is willing to try, the risks one is willing to assume, and the effort one is willing to put forth (Coopersmith, 1967; Wiley, 1961).

Thus, the self-conceptions of students provide evidence about the kinds of students who are attracted to the fields. This information suggests the kinds of admission criteria actually being used and the character of the institutional student community that is formed by student characteristics.

The self-rating items were chosen to include items that were useful in earlier research. Additional items were included that seemed to be particularly relevant to certain fields. The items fall into four general categories: academic abilities, such as writing ability; social abilities, such as sales ability; other specific abilities, such as mechanical ability; and general traits, such as reliability. The items seemed to cover a fairly comprehensive range of areas of student self-perception. On each item students could rate themselves as below average, average, above average, in the top 10 percent, or in the top one percent, compared to other seniors at their college. The "top one percent" option was used to provide further differentiation of students.

One of the striking things to be seen in Table 2.5 is the rather high opinion students have of themselves. The figures show only the percentage of students in each group who rate themselves in the top 10 or top one percent of seniors at their college. It is a bit surprising that in only three of 21 areas did as few as 10 percent of all students rate themselves in the top 10 percent. Interestingly the three areas were those bearing on expressive talent: artistic, musical and acting ability. In contrast, large percentages of seniors rated themselves in the top 10 percent in four areas: skill in relating to others on

Table 2.5

Students Self-Ratings of Their Abilities

Ability	Post-Graduation Plans: Work	Military Service	Marriage	Grad. Arts Humanities	Grad. Bio. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total
Writing ability	18	18	20	35	20	33	41	20	19	20
Artistic ability	8	7	8	18	7	7	5	6	7	8
Musical ability	9	9	10	19	10	11	9	11	10	10
Scholarship	18	19	24	36	42	40	44	45	29	25
Scientific ability	13	23	15	8	63	15	11	61	25	19
Mechanical ability	14	24	12	8	27	9	13	20	22	15
Leadership ability	26	37	26	30	28	36	50	32	38	29
Reading ability	25	20	27	39	27	40	44	30	25	27
Acting ability	7	5	6	14	5	9	11	7	7	7
Clerical ability	14	12	14	14	10	15	22	10	16	14
Speaking ability	19	20	18	30	18	30	44	23	24	22
Mathematical ability	17	25	19	11	49	17	21	39	30	21
Sales ability	12	13	11	11	9	14	24	10	16	13
Athletic ability	17	24	15	13	19	16	25	22	21	18
Skill in relating to others on an individual basis	38	33	37	46	29	52	50	41	43	38
Sympathy for others in trouble	43	34	44	50	35	53	47	48	44	42
Perseverance	35	35	38	45	46	47	52	55	46	39
Reliability	55	56	56	58	59	63	70	65	63	57
Creativity	24	21	25	43	30	30	31	21	27	25
Memory	27	26	29	40	38	36	47	43	33	30
Ability to act when limited facts are available	23	26	22	28	29	32	44	32	32	25

Note: Figures are percentage of each group with self-ratings of top ten or top one percent. Options were "below average", "average", "above average", "top ten percent", and "top one percent".

an individual basis, sympathy for others in trouble, perseverance, and reliability. The peak of self-regard was found among law students, 70 percent of whom considered themselves in the top 10 percent on reliability. Most students clearly tended to have a high regard for their abilities in many areas. However, as the research mentioned earlier suggests and as analyses reported below will indicate, these self-ratings provide very useful assessments of people's characteristics. They cannot be accepted outright, however, and need to be taken in context.

Detailed analyses by sex indicated that men generally rated themselves higher in most areas, particularly in such things as mechanical and scientific ability.

Students who planned some form of advanced education generally differed from other students by rating themselves higher in a number of areas related to academic accomplishment: scholarship, perseverance, and memory. They also tended to rate themselves higher on skill in relating to others on an individual basis.

Each specific group also had a distinctive pattern of self-ratings. Students planning to work tended to rate themselves lower than other students on the academic traits just mentioned, as well as writing and leadership ability and the ability to act when limited facts were available. The self-ratings of the students planning to enter military service present a striking picture. Their self-ratings were the lowest in more areas than any other group of students. They rated themselves lowest in academically-related areas such as reading and writing ability, perseverance, and memory, expressive areas such as musical, acting, and creative ability and, while rating themselves high in leadership ability, rate themselves low in skill in relating to others on an individual

basis and sympathy for others in trouble. Possibly these students felt they could lead people without being overly concerned with them personally. Students who planned to marry rated themselves relatively low on leadership and speaking ability, and the ability to act when limited facts are available. This pattern of self-ratings may be due to a lower level of social assertiveness.

Students who chose different graduate careers also differed from one another in their self-perceptions. Students who planned to study the arts and humanities in graduate school clearly stood out by their relatively high self-ratings of their expressive and aesthetic talents: artistic, musical, acting, and creative ability. They rated themselves high on sympathy for others in trouble. They also stood out by their lower self-ratings on such "practical" traits as scientific, mechanical, mathematical, and athletic ability. They appeared to regard themselves as talented in aesthetic areas but considered themselves relatively untalented or at least uninterested in dealing with science and pragmatic details. This was nearly the mirror image of the self-description of prospective graduate students in the biological or physical sciences. The future science students rated themselves high on scientific, mechanical, and mathematical ability, and low on acting ability, speaking ability, sales ability, and sympathy for others in trouble. In various ways, these ratings all deal with relating to other people. Such results concur with those of others, which have indicated that scientists are oriented toward data and things and away from people, so the self-rating results should cause no surprise. The men in this group rated themselves significantly higher than the women in scientific ability and creativity. Students who planned to enter graduate schools in social science were distinctive on only two traits: the highest self-ratings on skill in relating to others on an individual basis and sympathy for others

in trouble. Undoubtedly many students study social science because of their concern for people. It is surprising that the social science students were not more clearly differentiated from other students. The men in this group gave themselves considerably higher ratings than the women in their writing and leadership abilities.

In contrast to the prospective members of the military who rated themselves low, the prospective law students rated themselves quite high in many areas. In 11 of the 21 self-rating areas they rated themselves higher than any other group. In two others they were second highest. The only low areas were artistic and musical ability. Their high self-ratings included the academically related abilities of writing, reading, and clerical ability, scholarship, perseverance, and memory. The future law students also rated themselves high in areas involving skill in dealing with other people: leadership, speaking, and sales ability, and skill in relating to others on an individual basis. They also rated themselves high in athletic ability. Finally, they rated themselves high on the more general traits of reliability and ability to act when limited facts are available. The picture that emerges from these results is of confident people--confident in their academic powers, their ability to deal with and lead others, and their readiness to assume responsibility for action. Of course this is near the portrait of the stereotypical lawyer, and it is further evidence that fields attract those with the characteristics the field demands. The women who planned to attend law school rated themselves higher than their male counterparts in reading ability, perserverance, reliability, and memory.

Prospective medical students had yet another distinctive pattern. They rated themselves relatively high on scholarship, scientific ability, mathematical

ability and perseverance, and low on creativity. They also had fairly high self-ratings on sympathy for others in trouble. This combination of scientific interest and concern for others forms the distinctive pattern of prospective medical students. The women who planned to go to medical school rated themselves significantly lower than the men in scholarship and other variables, suggesting a lower sense of confidence. Finally, the future "other professional school" students were not differentiated at all, probably because of the variety of fields included in that category.

The self-rating results show that students who choose various postgraduate careers differ from one another in many ways. The pattern of the differences strongly suggests that people choose fields that are consistent with their ideas of themselves. The research cited at the beginning of this section suggests that people's ideas of themselves usually correspond to more "objective" assessments of their abilities and personal traits. The self-rating results, then, provide additional evidence that people are attracted to fields that fit their characteristics.

Work Values. People seek different things from their work. The things they seek reflect their values and their priorities. Studies over many years (Davis, 1964 , 1965 ; Sharp, 1970) have related these "work values" --the important considerations people use in picking a career--to vocational choices, as well as to measures of vocational interests and other personal characteristics. The research demonstrates that people who choose different careers have very different work values (Rosenberg, 1957, Marsh and Stafford, 1966). To study the work values of seniors we selected fifteen vocational attractions that had been found to be important in earlier research and that seemed relevant to the choices college seniors face. Students could

indicate how important each attraction or value had been in their choice of a vocational field.

The students in this study showed distinctive patterns of work values corresponding to their postgraduate plans, as shown in Table 2.6. The figures in this table show the percentage of each group which indicated that each work value on the left was very important, with a few exceptions. The exceptions are the values marked with asterisks for which the figures show the percentage indicating that the value was either important or very important. We followed this procedure to highlight some important contrasts.

Overall, several values were important to relatively few students--"lack of interest in other fields" and "requires shorter education than other fields." These two are negative values, more reasons for avoiding fields than for choosing fields. Most of us usually operate in terms of the activities we like to do than those we dislike. "Security" also was generally considered of low importance.

Each group had a unique pattern of work values, although compared to other groups, students who planned to work had no exceptionally high or low values compared to other students. Students who planned to work, marry, or enter the service all assigned low importance to "independence (extent to which you can work on your own)." In addition, men who planned to work placed a higher value than women on income, opportunities for leadership, status and prestige, and the opportunity to get ahead rapidly. They placed a lower value on being of service to others, and working with people rather than things. In two words, the men seem more ambitious in their values, the women more concerned with service. Students who planned to marry were further differentiated only by the low values they placed on status and prestige. The seniors who planned to work

Table 2.6

Importance of Fifteen Work Values to College Seniors

("How important have the following been to you in your choice of a vocational field?")

Value	Post-Graduation Plans									
	Work	Military	Marriage	Grad. Arts Humanities	Grad. Bio. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total
High income*	51	65	48	33	45	41	76	50	62	51
Independence (extent to which you can work on your own)	39	39	38	49	49	51	63	62	42	42
Being of service to others	48	36	51	50	35	59	49	77	47	48
Security	25	26	26	18	17	19	22	30	25	23
Opportunity for leadership*	70	79	68	64	56	70	84	65	78	69
Interest in the work activities	52	52	53	54	63	63	51	65	55	53
Lack of interest in other fields	5	5	5	6	5	5	6	7	5	5
Allows more free time than other fields*	33	33	34	40	25	36	31	9	31	32
Makes use of my special talents and abilities	44	38	46	61	49	49	39	46	46	44
Interest in working with people rather than with things	54	35	57	59	23	63	52	69	51	50
Requires shorter education than other fields*	9	9	8	4	3	6	2	1	7	8
Interest in travel*	41	49	32	52	31	44	35	20	38	39
Status, prestige*	41	55	38	39	42	44	69	52	48	43
Opportunity to get ahead rapidly*	41	59	36	26	36	30	58	30	52	40
Desire to make a contribution to knowledge	20	16	22	30	39	32	16	21	22	21

Note: Figures show only the percent of each group indicating that the value was very important, except that for the values with asterisks where the figures show the percent of each group indicating the value was either important or very important. Options were "not important," "important," and "very important."

or marry constitute the majority of the "total" student group so frequently that they are not differentiated. In contrast, students who planned to enter the military were distinguished in several ways. Compared to other students, they assigned more importance to opportunities for leadership, travel, status or prestige, and the opportunity to get ahead rapidly. Considering the backgrounds of many of these students, they may well have believed military service was their best channel for the social mobility suggested by these items. In addition, they placed relatively little importance on independence, making use of their special talents and abilities, desire to make a contribution to knowledge, being of service to others, and interest in working with people rather than with things. The structure of military service makes the first three values plausible. Compared to other fields, the services usually offer less independence, want generalists, and are not in the business of producing knowledge. The other values also fit in with the idea that as a military officer one seeks to lead people rather than serve them.

Prospective graduate students in the arts and humanities placed little importance on what to them seemed to be mundane values such as income, security, and the opportunity to get ahead rapidly. In contrast, they placed relatively great importance on using their special talents (which they believe they have, as shown in the self-rating results), free time, and travel. All these values help to fill in the portrait of arts and humanities students presented earlier--expressive, aesthetically aware students who are relatively unconcerned with pragmatic problems.

Seniors who planned to pursue graduate study in the biological or physical sciences placed the lowest importance of any group on the three values involving

relations with people: being of service to others, opportunities for leadership, and interest in working with people rather than things. They also placed a low value on security. They placed a relatively high value on their desire to make a contribution to knowledge. These results again show their high interest in ideas and things, and their low interest in people. Men in this area placed a higher value than their women counterparts on income and leadership.

In contrast to the students in the "hard" sciences like chemistry, physics, physiology or zoology, prospective graduate students in the social sciences placed a high value on being of service to others and (particularly among the women) or working with people rather than things, understandably so since the social sciences are basically concerned with the study and help of people.

The work values of future law students suggest they were oriented toward people in another way--they seemed to wish to lead others and gain prestigious positions, preferably as rapidly as possible. They were also interested in high incomes and being able to work on their own. They expressed relatively little desire to make a contribution to knowledge or use their special talents. Once again, then, prospective lawyers seemed to be strivers--striving after the traditional rewards of status in our society. The women who planned to attend law school were less concerned than the men with money, prestige, and opportunities for rapid advancement and more interested in working with people. They seemed relatively more concerned with the law per se and less with its extrinsic rewards than their male counterparts.

The prospective medical students espoused values consistent with an ideal image of their intended profession: service to others, working with people,

working independently, and interest in the work activities. They also claimed little interest in free time or travel. Finally, they placed the highest value of any group on security. In short, the prospective medical students present a picture of dedicated, if staid, future professionals. However, as Becker et al. (1961) and others have suggested, their perspectives may change during the course of medical school. Women who planned to go to medical school were less concerned than the men with income, independence, and status or prestige.

Compared to other groups, students who planned to study other professions placed relatively high value on opportunities for leadership, and opportunities to get ahead rapidly, and a low value on independence. One might characterize this combination of values as the organization man syndrome.

Rosenberg (1957) distinguished between intrinsic and extrinsic work values. Intrinsic values were those that depended on the meaning or the interest of the work activities themselves. Intrinsic values may be broken down further into expressive values, such as making use of one's talents, and specific interest values, such as an interest in working with people. Extrinsic values derive from the rewards that accrue from the work rather than the work itself. Examples are income, security, prestige, etc.

The groups we have studied showed a great variety of values from largely intrinsic to largely extrinsic, with several combinations. Seniors who planned to enter the military or study "other" professions seemed to choose their careers largely for extrinsic reasons. Seniors who planned to study either the hard or the social sciences seemed to be oriented mainly toward their specific interests--ideas and things, and people, respectively. Students choosing the arts and humanities seemed to value the expressive opportunities of work, and rejected

all extrinsic values--except travel and free time. Future law students seemed to value the extrinsic rewards of their profession and were relatively unconcerned with the intrinsic reasons. Finally, students who planned to study medicine voiced both kinds of intrinsic values--expressive and those relating to specific interests--and one extrinsic value, security.

The patterning of extrinsic and intrinsic values sheds more light on the differences between the groups. Other ways of analyzing the values might be used, such as values involving people versus values unrelated to people, or values reflecting ambition versus values indicating a desire to avoid involvement, etc. or one might contrast the values of practicing professionals in the field with those of the seniors planning to enter the field. Each of these approaches could point up more important characteristics of the groups. The main point, however, whatever system is used, is that seniors seem to make postgraduate plans that are consistent with the values they seek from work.

It is also instructive to compare the work values of the seniors in this study with those of the seniors of ten years ago (Davis, 1965; Sharp, 1970). Not only do the seniors seem to choose the same values then and now, but the values that distinguish each subgroup are the same. For example, prospective law students then had the same work values as today's prospective law students--high incomes, leadership, prestige, and advancement. As in the results for background information, each area seems to be getting basically the same kind of student today as ten years ago.

Chapter 3

STUDENTS' UNDERGRADUATE EXPERIENCES

We turn now from seniors' backgrounds and characteristics to their undergraduate experiences--the things they did in four years of college. Since our primary concern is the career choices of seniors, most of the questions are concerned with experiences that may have influenced their choices. However, another group of items asked students about their extra-curricular activities, and other items asked students for their views of their colleges.

Many things can happen in the course of a college career. A student may have to interrupt his study to help out in a family crisis. A young woman may find that she is less interested in sociology than law. A student's savings may run out, and he may have to work. The object of the questions shown in Table 3.1 was to assess the frequency of these kinds of experiences in the college years. Considering the fairly large differences in their backgrounds, students with different plans had remarkably similar work histories. The students who planned to attend law or medical school may have worked a little less often, but the striking fact is that two-thirds or more of every group had worked while in college. It is also true that fewer than a quarter of the students in any group had ever interrupted their educations. Those planning to work or continue study in the social sciences had more often interrupted their educations, and those planning to study medicine less often, but these are relatively small differences.

Table 3.1

Personal History Data

	Work	Military Service	Marriage	Grad Arts Humanities	Grad. Biol. Phys Science	Grad Soc Science	Law School	Medical School	Other Prof. School	Total
Work History										
None	23	26	25	27	27	24	30	35	26	25
Part time as college student	59	62	64	60	60	60	58	58	54	59
Full time	10	12	10	13	13	15	11	7	20	15
Ever interrupt education?										
No	77	88	86	82	83	77	86	92	76	79
Yes, less than a year	7	4	5	5	5	5	4	3	7	6
Yes, more than a year	15	7	8	12	12	17	9	5	17	13
Ever change major?										
No	52	52	53	51	58	40	46	64	52	51
Once	33	34	33	33	30	38	38	26	34	33
Two or more times	13	12	12	13	10	20	13	8	11	12
Ever change vocational choice?										
No	42	41	44	39	44	28	39	60	40	41
Once	30	32	32	33	34	36	33	25	34	31
Two or more times	21	21	19	22	18	31	25	13	21	21
When first thought of advanced training?										
Before high school				10	17	12	27	39	8	16
During high school				20	28	21	33	39	18	24
During first two years college				16	18	20	16	12	15	16
During last two years college				35	10	34	19	7	34	28
When definitely decide on advanced training										
Before high school				2	7	4	9	14	3	5
During high school				7	11	7	17	30	6	11
During first two years college				12	16	14	18	26	11	15
During last two years college				59	56	61	50	25	55	53

Note: The percentage of each group not responding to each question is not shown.

The differences become more sizable when we examine changes of major and vocational choices. Prospective law students (particularly the women) and prospective graduate students in the social sciences seemed to be the least stable in their choices, and medical students the most stable. To some degree these differences are due to curricular requirements of the fields, but they may also be due to the personal characteristics of the students in the fields. As seen in the self-rating and other results, the prospective medical students appear more consistent and stable, while prospective law and social science students appear more changeable and experimenting. Students with different plans also differed in the times when they first thought of, and finally decided whether to pursue postgraduate training (this question was not asked of students not planning advanced work). Students directed toward law and medicine (particularly the men) thought of advanced work relatively early, those directed toward arts and humanities, social sciences, and other professions relatively late. Students choosing medical school reached a definite decision about advanced education at a relatively early age. The time of decision seems to be particularly important in medicine, as suggested by the research of Rogoff (1957):

> A youthful decision is generally a more enthusiastic one. Other occupations are seldom considered seriously; doubts about whether a medical career is the right choice are relatively infrequent; and, on entrance into medical school, the chosen profession seems like the only one that could really be satisfying. Students who picked their career at an early age were also more likely to be influenced and encouraged by their families, and less likely to be helped by contemporaries. These seem to be matters of the difference between adolescents and young adults in their relations with family and friends, and may in turn affect the image of a medical career formed by those who decide at different ages.

Of course other factors probably influence the time of decision such as the number of undergraduate course requirements, the amount of contact students have with members of their field, and the social status of the fields

(Thielens, 1957). In any case, it is clear that students who planned to enter the traditional professions chose their careers earlier, while seniors planning other careers were more changeable.

Nonacademic Activities and Accomplishments

To this point, we have concentrated on seniors' experiences that related to academic and occupational choices, but the college experience includes many other experiences, particularly activities outside the classroom. These activities are important for several reasons. Evidence has slowly accumulated to show that extracurricular experiences and accomplishments are as important for aspirations and educational accomplishment as academic experiences and accomplishments (Baird, 1970b; Spady, 1971). For example, the adult leaders of today often began as high school and college leaders (Matthews, 1960). Successful adult artists, musicians, actors, and dramatists began their activities in high school and college, usually outside the classroom (Barron, 1968; Cox, 1926). Successful scientists began an intense involvement in science in high school and college (Eiduson, 1962; Roe, 1953; Taylor and Ellison, 1967), and most successful writers began their publishing careers on high school and college newspapers, literary magazines, and annuals (Barron, 1968; MacKinnon, 1962). Some of this evidence is also summarized by Baird (1969c). Further evidence has also accumulated to show that students who participate in extracurricular activities are more satisfied than others with their college careers (Berdie, Pilapil, & Im, 1970).

Of course, there is a great deal of evidence that extracurricular and academic achievements in college are predicted best by similar achievements in high school (Baird, 1969c; 1969d; Holland, 1962). In fact, it is rather unlikely that a student who has not been active in high school will be active in college;

there are very few "latebloomers" (Baird, 1969d). In short, the best predictors of later high-level accomplishment are records of similar accomplishments. It seems logical that seniors who will show high-level accomplishments in graduate or professional school and beyond would be those seniors who had records of similar achievements as undergraduates. For these reasons we included a number of items about nonacademic accomplishments in the Senior Survey. (The reader who is interested in the technical development of these kinds of items is referred to Holland, 1961; and Richards, Holland, and Lutz, 1967).

The Senior Survey included items dealing with six kinds of accomplishment: general cultural activity, leadership, preprofessional activity, political activism, literary and artistic achievement, and scientific accomplishment. There was also one item about winning a letter in athletics. Seniors simply marked the activities in which they were involved during their college years. These kinds of questions seem to be valid. Students seem to report their accomplishments accurately without distortion (Maxey & Ormsby, 1971).

The results, shown in Table 3.2 illustrate the wide variety of frequency of activities and accomplishments. Most seniors regularly watched the news on television or read a news magazine. Many had often attended concerts and regularly read books unrelated to their fields. In contrast, very few had ever participated in a state or regional speech or debate contest or won a prize in a science contest. Generally, seniors were most active in general cultural activities, preprofessional activities, and political activism. In addition, a surprisingly large percentage of seniors had held office in a student organization. Few seniors reported literary and artistic achievements or scientific achievements.

Table 3.2

Seniors Nonacademic Accomplishments

Accomplishment or Activity	Post-Graduation Plans: Work	Military Service	Marriage	Grad. Arts Humanities	Grad. Biol. Phys. Sci.	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total
General Cultural Activity										
Attended concerts fairly often	47	42	49	62	44	53	49	49	46	47
Regularly read books unrelated to any courses that I have taken	47	39	44	58	45	58	52	42	47	46
Regularly watched the news on television	62	67	58	53	53	60	68	55	64	60
Regularly read a news magazine	60	62	56	63	60	69	79	67	63	61
Leadership										
Was elected an officer of a class	6	5	7	9	4	7	11	6	7	6
Was elected president or officer of one or more student organizations	32	38	37	38	39	39	47	40	39	35
Organized a college political group or campaign	4	4	3	5	4	9	12	4	4	4
Worked actively in an off-campus political organization	8	7	8	12	7	17	22	9	9	9
Was elected or appointed to a college office with power to influence institutional policy	6	5	6	9	7	11	17	7	7	6
Preprofessional Activity										
Attended one or more regional or national meetings of scholarly or professional societies in my field	20	17	21	24	26	22	11	17	24	20
Won a prize, award or other special recognition for work in my field	18	20	22	36	31	26	25	26	23	21
On my own (not a course assignment) read scholarly or professional books in my field	49	41	49	66	62	66	50	54	53	50
Political Activism										
Worked actively in a student movement to change institutional rules, procedures, or policies	16	13	16	25	16	27	27	21	16	17
Initiated or organized a student movement to change institutional rules, procedures, or policies	4	4	4	8	5	8	11	6	5	5
Participated in one or more demonstrations for some political or social goal, such as civil rights, free speech for students, etc.	29	21	27	39	31	46	46	37	29	31
Literary and Artistic Achievement										
Received a high rating (Good, Excellent) in a state or regional music contest	2	2	2	5	2	2	2	2	2	2
Participated in a state or regional speech or debate contest	1	1	1	3	2	2	5	1	2	2
Had a major part in a play	4	3	4	12	3	6	4	3	4	4
Won a prize or award in an art competition	2	1	2	5	1	1	1	2	2	2
Edited the college paper, yearbook, or literary magazine	3	2	3	6	2	4	4	3	3	3
Had poems, stories, essays, or articles published in a public paper or magazine	6	5	6	15	6	12	12	8	7	7
Science										
Won first, second, or third prize in a science contest	1	1	1	1	3	<1	8	2	1	1
Had an assistantship in a scientific field	2	3	3	2	27	8	1	19	5	5
Won a letter in athletics	7	13	6	7	11	9	13	13	10	8

Of course, the groups of seniors differed in their activities. Seniors who planned to work or marry, the majority, were like the "total." Students who planned to enter the military were generally the least active group except for watching the news. Seniors who planned to study the arts or humanities were the most active in general cultural activity (except for the news), pre-professional activity, and literary and artistic achievement. Prospective graduate students in the sciences were, of course, active in science and pre-professional activities, but were relatively inactive in some leadership and general cultural activities. Next to the prospective law students, seniors who planned to study the social sciences reported more leadership and political activism accomplishments than most seniors. Prospective medical students were relatively active in science and athletics. Future law students were also relatively active in athletics. Seniors who planned to enter other professional schools were like the total sample.

What Do Seniors Think of Their Colleges?

To answer this question, we needed to ask two others: first, which aspects of colleges are most important, and second, about which aspects can the seniors give an opinion? Of course, colleges may be described in many ways (Baird, 1970; Feldman, 1971; Pace, 1968). The variety of approaches to descriptions of colleges is understandable, because colleges are many things--students, classes, professors, tests, sports, facilities, and extracurricular activities, among others. In addition, various disciplines have used different approaches to this variety of elements (Baird, in press). Whatever approach is used, however, the dimensions by which colleges differ found by one approach are similar to those found by others (Astin, 1971; Centra, 1971; Creager & Astin, 1968; Pace, 1968). The results of these studies were used to develop questions about colleges for the

Senior Survey. Of course, most seniors would be unable to comment on the institutional endowment or the details of the tenure policy for faculty. They can, however, give their views of many important aspects of the environment. In fact, for some aspects of the environment seniors are the best source of information. The questions are concerned with five general areas--student characteristics and behavior, faculty characteristics and behavior, the emphases of the institution, interpersonal relations, and the general climate of the institution. Analysis of seniors' responses to these questions by students' postgraduate plans, as well as other characteristics, showed very few differences. That is, students who planned very different careers seemed to see their colleges in the same way. For this reason, the results are shown for all seniors combined.

The percentage of seniors saying each statement was descriptive of their college is shown in Table 3.3. Students seemed in greatest agreement about the warmth of their campuses--they denied that their colleges were cold, impersonal, or treated students like numbers. Instead, they felt that other students were friendly and that the environment was informal. Seniors also felt that the faculty was friendly, committed to teaching, and reported that they were not often absent from classes. These results suggest that the sense of community or collegiality is still alive in most colleges. However, seniors did not feel their schools had "much school spirit" or were in closely knit communities. These results only appear to be inconsistent with the previous ones. The results about school spirit only suggest that the "rah-rah" aspects of college life are not as important as they once were. The item about the closely knit community was intended to refer to the local community. It may be that most campuses have a stronger sense of "community" than the cities or towns that surround them. In fact, in this age of anomie and anonymity, the college years may be the only ones in which some students will feel part of a community.

Table 3.3

How Seniors Viewed Their Colleges

Statement	Percent Saying Statement Was Not Descriptive	Somewhat Descriptive	Very Descriptive
There is poor communication between administration and students.	27	48	20
Students are friendly.	9	49	37
College is intellectually stimulating.	17	54	24
College is proper and conventional.	20	47	27
There is an active social and dating life.	29	41	23
College emphasizes religious and ethical values.	60	21	13
Has a friendly, approachable faculty.	8	52	35
Rules are strictly enforced.	36	45	12
There is keen competition for grades.	14	47	33
Students are treated like numbers.	39	38	17
There is much school spirit.	46	37	11
Has a liberal environment.	24	47	22
Has an informal environment.	9	53	31
The teaching is excellent.	15	61	18
Students are very bright.	13	58	23
There are lots of student cliques.	21	45	26
College is cold and impersonal.	55	31	7
College helps students become mature.	16	53	24
Students are independent.	9	58	27
Students often change majors.	9	55	29
Many students have jobs.	16	52	24
Is in a closely knit community.	45	33	15
Students are involved in governance.	24	57	11
College is committed to social change.	34	48	10
Professors are often absent from class.	78	13	1
There is a lot of radical activity.	54	33	6
Professors are more concerned with research than teaching.	51	33	8
There is a lot of drinking.	22	41	28
Drugs are easily available.	21	42	29
Academic cheating is fairly common.	41	41	10
Most students think that traditional politics are ineffective in leading to social change.	26	51	15

Seniors also said that there was not a lot of radical activity at their colleges, nor were their colleges committed to social change. Apparently not all colleges are politicized yet.

Seniors also believed their colleges did not emphasize religious and ethical values. They also did not feel that rules were strictly enforced. The students did not feel that cheating was common, even though they felt there was keen competition for grades. Thus, most seniors seemed to regard their colleges as friendly, comfortable places devoted to the academic life.

Other research, such as that reported by Astin and Panos (1969), has shown that college characteristics influence students' career choices. The research is complex and still swept by many controversies. Since the study of undergraduate effects is not the primary purpose of this study, this type of research will only be mentioned to remind us of another influence on students' choices. In the next chapter we turn to seniors' perceptions of subjects that seem more directly relevant to their choices--types of careers and types of post-baccalaureate education.

Chapter 4

SENIORS' PERCEPTIONS OF CAREERS AND SCHOOLS

How Students View Careers

Seniors' views of careers and occupations seem to affect their choices in several ways. A student may actually choose or reject an occupation because its "image" appeals to him or to her. Other students may then expect a student to exhibit the characteristics of a professional in that field, and the student may begin to mold his behavior to conform with the expectations. As Beardslee and O'Dowd (1962) put it, "In the case of occupational images, a person may be placed in the prestige hierarchy, and his personal and social attributes may be inferred, by reference to his occupation. A person does in turn recognize himself as suited for a field if he demonstrates or develops characteristics that qualify a person for membership in that field." Many of the views students hold of occupations are not very similar to the pictures provided by occupational information. Thus, some fields may be shortchanged by their "image"; students may not wish to enter them because they believe erroneous stereotypes. If fields wish to present an accurate view of themselves, they need to know what the views of students are so that they may try to correct these stereotypes. And, of course, some fields may be concerned with their "image" with the educated public anyway.

That stable views of occupations exist has been amply demonstrated by the work of many researchers, including Grunes (1957), Walker (1958), Davidson and Riesman (1959), Beardslee and O'Dowd (1962).

The Senior Survey included items about occupations in order to gain additional and more current information of the views students hold as they make their post-graduate decisions. It seemed particularly important to examine the views of students with different postgraduate plans. We thought that students choosing a career might have inflated views of their career. The differences between fields might, therefore, be as revealing as the overall results.

Five careers often chosen by seniors were used--business, college teaching and research, elementary and secondary school teaching, law, and medicine. Students were asked to indicate whether 18 statements were true or not true for each field. The statements covered five areas: the rewards of the field, the requirements for success in the field, the drawbacks of the field, the opportunities provided by the field, and the demand for people in the field. The seniors were asked to indicate whether they thought each statement on the left of the table was True (T) or Not True (NT). To make the table less cluttered, the percentages of seniors not responding to each item are not shown. If the percentage not responding were shown, each set of percentages would add up to 100%. The results for each field are shown in Table 4.1.

Medicine. The majority of seniors clearly regarded medicine as a respected, secure, and well-paying profession. Furthermore, they saw it as a constantly challenging and interesting field that provides opportunities to help other people and make a contribution to knowledge, an unusual combination. Students thought that a doctor can be his own boss. At the same time, they thought a doctor is not allowed a great deal of individual freedom. How can one be his own boss and not have individual freedom? Perhaps seniors read the "own boss" item to refer to the fact that most doctors are in private practice, and answer to no

Table 4.1

Student Perceptions of Five Careers

Description of Field	Views of Medicine				Views of Law				Views of College Teaching & Research				Views of School Teaching				Views of Business			
	All Students		Future Medical Students		All Students		Future Law Students		All Students		Future Graduate Students		All Students		Students Planning Advanced Study		All Students		Students Planning Advanced Study	
	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT
Highly respected by the public	83	1	88	1	80	4	84	4	68	16	68	17	37	47	32	51	55	29	53	30
Allows a great deal of individual freedom	33	50	61	27	46	36	68	19	68	15	74	12	30	54	25	58	32	51	28	54
Is a very secure profession	80	3	87	1	70	12	68	18	48	35	46	37	49	34	50	32	36	46	35	47
Requires hard work and long hours	79	4	87	1	72	10	79	6	55	28	49	25	39	44	34	48	52	30	50	31
Provides a very good income	82	1	87	1	80	2	83	3	40	42	34	48	9	73	8	74	71	11	71	10
One can help other people	82	1	87	1	79	3	85	1	76	7	76	7	81	2	80	2	41	41	37	44
Constantly challenging and interesting	72	11	83	5	65	16	73	12	67	15	72	12	52	30	48	34	41	41	37	44
Requires a great deal of creativity	24	58	39	48	40	41	47	38	63	19	67	16	57	25	53	29	31	50	29	51
High level of intelligence necessary to succeed	72	10	75	12	69	12	72	13	61	20	66	17	22	60	20	61	33	48	31	49
Is a high-pressure occupation	68	14	72	15	65	16	70	14	24	67	27	54	17	65	14	67	69	12	70	11
One can be his own boss	68	14	82	6	70	12	80	5	36	45	52	40	13	69	11	70	51	31	48	33
One's political views affect his success in the field	12	69	11	76	53	28	50	35	28	53	31	52	29	52	31	50	48	33	50	30
Good chances to contribute to advancement of knowledge	70	11	80	7	38	43	48	37	79	3	80	2	43	39	36	45	19	61	15	65
Requires a great deal of time spent away from one's family	66	16	74	13	35	46	33	52	14	68	15	66	6	76	5	76	37	44	36	44
There is a great shortage of qualified people	70	12	81	7	35	46	36	49	34	47	33	50	38	54	30	51	16	65	16	64
There is an overabundance of qualified people	6	75	4	83	23	58	24	61	33	48	36	44	47	35	44	38	43	37	42	38
Has a rather rigid but unwritten code of social behavior	68	13	75	11	62	19	68	16	38	43	36	46	58	23	57	24	49	31	52	28
Success depends largely on a pleasing personality	33	48	38	49	46	35	44	41	29	52	26	56	55	27	53	29	63	18	63	18

Note: All figures are rounded percentages
T = True
NT = Not True
Percentage not responding is not shown.

one but themselves. Perhaps seniors then thought that "individual freedom" refers to the freedom to explore one's own ideas, behave in unusual ways, advocate deviant beliefs, and, in general, to have freedom to ignore the constraints of a well-defined role. This interpretation is supported by the seniors' view that medicine has a rather rigid but unwritten code of social behavior. The interpretation gains more credence from the fact that future medical students were the most likely to hold this view. However, seniors also thought that a doctor's political views or personality do not affect his success. They may have believed a physician must meet definite occupational and social roles that limit the scope of his free activity. However, within that role, a physician can run his own show. Perhaps because of these constraints seniors did not think medicine requires much creativity. Seniors did believe medicine is a high-pressure field, requiring long hours and hard work and time spent away from one's family. Perhaps considering these costs, students believed there is a shortage of qualified people in medicine.

Students who planned to attend medical school agreed with the views of other students except in two cases: (1) they felt that medicine does allow a great deal of individual freedom, and (2) while most tended to agree that medicine does not require creativity, a sizable minority believed it does. This difference may also have been due to differences in perceptions of the physician's role. The latitude for individuality may seem larger to those committed to a field than to those who are not.

Law. Seniors' perceptions of law were similar to their perceptions of medicine. Law, too, was seen as a respected, secure, and high paying profession. Seniors thought law was a constantly challenging and interesting field that allows one to help other people. Seniors also believed that the successful

practice of law requires a high level of intelligence if not creativity. Seniors also believed law is a demanding field--requiring one to work hard and long and deal with high pressure. Unlike medicine, seniors did not believe law requires a great deal of time away from one's family, nor did they think it provides chances to contribute to knowledge.

The same contradictory results that appeared in seniors' perceptions of medicine appear in law. Seniors believed a lawyer can be his own boss--meaning perhaps his own practice--but were split in their views of his individual freedom. The same interpretation we developed for the results for medicine may apply here. The interpretation gains support from the seniors' belief that one's political views affect his success in law, and that there is a rather rigid if unwritten code of behavior. Many seniors also believed that success depends largely on a pleasing personality. To these seniors law seemed to be a "political" field, where one's success depends on relations with others. Future law students entered one dissenting vote. They concurred with the other views, but felt that law does allow a great deal of individual freedom. The seniors seemed to feel that the supply of lawyers is about right--neither a shortage nor an overabundance of qualified people.

College Teaching and Research. The item asked students to react to college teaching and research as a general category. This lumps college and university and teaching and research, but it seemed a reasonable question to use with college seniors. Seniors felt that college teaching and research is a highly respected, if not necessarily-well-paying field. Seniors regarded it as a constantly challenging field which allows one to help other people and contribute to knowledge. But more than anything else, seniors

thought that professors are free--free as individuals, free from pressure, free from political constraints, free from narrow codes of social behavior, and free from the necessity of maintaining a pleasant facade. However, seniors thought that the professor is not his own boss, and only a slight majority regarded him as in a very secure profession. Seniors believed teaching and research requires hard work and long hours, but not away from one's family. They also believed success requires intelligence and creativity.

It is interesting that seniors felt that there was neither a shortage nor over supply of qualified people, in spite of the many articles about the glut of Ph.D.'s.

Elementary and Senior School Teaching. Seniors considered school teaching a constantly challenging and interesting field that offers chances to help other people. They believed that a successful school teacher needs a pleasing personality and creativity, but not a high level of intelligence. (The meaning of "pleasing personality" probably changes from field to field.) Seniors felt school teaching is a comfortable field, one that is secure and free from high pressure, the need to toe the line in regard to political views, or the need to spend time away from one's family. A slight majority felt that teaching does not require long hours and hard work. At the same time, seniors did not think it provides a good income. They did not think one could be his own boss or would be allowed a great deal of freedom. Seniors also felt that teachers are expected to follow a rather rigid if unwritten code of social behavior. Seniors were even unsure whether teaching is respected by the public. Compared to the other careers, seniors clearly seemed to feel that school teaching had lower status. Seniors felt there was no shortage of qualified people. If anything, they felt there was an oversupply.

Business. Seniors regarded business as a well-paying and respected field. They did not think it was secure. They felt business is a high-pressure career that requires hard work, a pleasing personality, the proper political views, and adherance to a rather rigid code of behavior. At the same time, seniors thought a businessman can be his own boss and tended to think he need not spend a great deal of time away from his family. They also thought business provides few chances to contribute to knowledge.

Seniors turned in a split vote on whether business was challenging and interesting and whether it allows one to help other people. Seniors planning to enter careers immediately after college tended to think these items were true; those planning some form of postgraduate education tended to think they were not. Of course, what is interesting to one group will not be interesting to another. Perhaps students going on to advanced study have professional "helping" fields in mind and believe the role of the businessman allows little of that kind of help. Seniors did agree in regarding neither high intelligence nor creativity as a prerequisite for success in business. Seniors saw no shortage of qualified people in business; many seniors thought there was an overabundance.

What Seniors Think of Graduate and Professional Schools

Just as students' perceptions of careers probably influence their choices of fields, so their perceptions of graduate and professional schools probably influence their choices of postgraduate education. Furthermore, as Pace (1968) and others have suggested, a student's expectations about the institution he is entering may affect his subsequent behavior. If his expectations are inaccurate, he may have trouble adapting to the institution or, at least, he

may be dissatisfied. (There are many problems in thoroughly testing out the seemingly simple idea that expectations will influence later behavior; the difficulties in definition, measurement, and analysis are very complex. We will simply report seniors' perceptions of schools here.) Thus, it seems important to know what seniors expect of graduate and professional schools. In addition, it is valuable to know what young educated people think of post-graduate education.

In order to gain information about students' perceptions of postgraduate education, we asked seniors to respond to 17 items repeated for five forms of postgraduate education: graduate schools of arts and sciences, law schools, medical schools, graduate schools of education, and graduate schools of business. The 17 items covered six areas: academic demands, course work, faculty-student relations, facilities, nonacademic demands, and admissions. The same True, Not True format used with the career items was used here.

Graduate Schools of Arts and Sciences. When seniors were presented with the above items they thought that "graduate schools of arts and sciences" are characterized by excellent teaching, friendly professors, opportunities for research and creative work, and more studying than undergraduate school. Seniors thought that the course work is stimulating, not dull, and that they would like it. They did not believe that the work emphasizes skills and practical training. While they thought it requires long hours of hard work, they did not think students have to defer marriage to get through. They also believed that students are not more concerned about money than helping people. They thought that Blacks and women do not face difficulties obtaining admission. Finally, with the exception of students planning to enter professional schools, seniors thought that there is intense competition for grades.

Students planning to enter graduate schools of arts and sciences agreed with this general description, but, compared to other seniors, relatively more often thought the course work is stimulating and that it requires long hours of hard work.

Law School. The majority of seniors thought that law schools are characterized by intense competition for grades, more study and a different kind of study than undergraduate school. Seniors thought the teaching would be excellent, although they thought there are few opportunities for research and creative work and that there is little choice of courses. Most seniors felt that, although law school requires long hours of hard work and teaches skills and practical training,they would not find the course work dull nor dislike it. Seniors considered the costs as so great that many students go into debt. They did not think that Blacks have a hard time entering law school, but tended to think that women face discrimination in the admissions process.

Students planning to attend law school agreed with this general description, but also perceived the faculty as friendly and accessible, the work as stimulating, and denied that many students must defer marriage. Compared to other seniors, they were also relatively more likely to think that the teaching is excellent and that it requires more studying and a different kind of studying than undergraduate school. They were also less likely to see the course work as dull or feel that they would dislike the course work. They were less likely to believe that Blacks have a hard time getting in, and tend to deny that women face discrimination in admissions.

Medical Schools. The majority of the seniors believed that the competition for grades in medical schools is intense, requiring more studying and a different kind of studying than undergraduate school. They felt the teaching is excellent,

Table 4.2

Student Perceptions of Five Types of Advanced Study

Description of School	Views of Graduate School				Views of Law School				Views of Medical School				Views of Graduate Business School				Views of Graduate Schools of Education			
	All Students		Future Graduate Students		All Students		Future Law Students		All Students		Future Medical Students		All Students		Students Planning Advanced Study		All Students		Students Planning Advanced Study	
	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT	T	NT
	51	33	56	30	76	7	83	7	73	11	60	30	59	25	58	25	40	43	36	48
There is intense competition for grades	63	16	69	13	47	31	62	23	49	30	70	16	57	27	51	27	62	16	64	14
The faculty is friendly and readily accessible to students	58	20	64	18	67	10	77	8	70	8	78	7	54	23	53	24	44	33	43	34
The teaching is excellent	68	11	75	9	33	44	39	46	47	31	67	19	28	49	25	53	43	35	41	37
There are many opportunities for research and creative work	56	23	62	20	74	4	83	3	75	3	80	7	52	26	50	28	44	35	40	39
It requires much more studying than undergraduate college	37	42	41	41	57	21	69	17	57	21	54	32	35	42	34	44	32	46	30	48
It requires a much different kind of studying than college	59	20	63	19	19	58	31	54	16	62	15	71	35	42	34	44	43	35	43	34
It allows considerable choice in courses students may take	23	55	21	61	54	23	61	23	63	14	63	23	52	25	55	23	46	31	50	28
Primarily teaches skills and practical training	15	56	12	64	20	50	16	65	18	52	9	75	24	46	26	45	23	47	24	47
I would not like the course work, but it is required for the career I have chosen	15	61	9	71	26	49	15	68	15	60	6	80	38	37	41	35	35	40	36	40
The course work is dull	54	21	66	13	44	31	61	21	54	21	73	12	29	46	26	49	32	43	31	44
The course work is very stimulating	57	20	66	15	74	3	83	2	75	1	84	2	51	25	49	27	43	33	40	37
It requires many long hours of hard work	14	63	15	66	40	36	35	49	49	27	42	44	13	63	12	64	11	65	10	67
Many students have to defer marriage to get through	22	54	20	61	42	34	38	45	25	51	20	65	57	19	60	17	15	61	13	63
Students are more concerned about money than in helping people	46	31	50	34	67	9	75	10	71	6	81	5	44	32	43	33	40	36	39	38
The costs are so great that many students go into debt	15	61	15	64	28	47	13	71	28	48	14	71	23	52	23	54	14	61	12	63
Qualified Blacks have a hard time getting into these schools	13	63	18	61	43	33	32	52	43	32	49	35	33	43	36	40	8	68	8	69
Women are discriminated against by the admissions policies																				

Note: All figures are rounded percentages.
T = True
NT = Not True
Percentage not responding is not shown.

the work stimulating. They thought they themselves would like the course work. However, they believe medical school requires long hours of hard work, offers few choices in the courses allowable, and primarily teaches skills and practical training. They also believed that many medical students have to defer marriage and go into debt. Medical students were not seen as placing money before people. Finally, they did not think that Blacks have a hard time getting into medical school, but tended to think that women face discrimination in the admissions process.

Prospective medical students agreed with this general description but were more likely to think that the faculty is friendly and accessible, and that there are many opportunities for research and creative work. Compared to other seniors, they were relatively less likely to think there is intense competition for grades, that the work is dull, or that Blacks have a hard time getting in. They were more likely to think the work is stimulating, and that the costs are so great that students go into debt. Perhaps they were especially aware of the costs of medical school and the difficulties medical students face in financing their educations.

Graduate Schools of Business. Seniors were fairly respectful of the academic demands of business school. They felt there is intense competition for grades, which requires a good deal of studying and hard work. They did not think that business school required a different kind of studying than undergraduate work. Seniors seemed to have a curious lack of feeling about the course work. They didn't think it was stimulating, they didn't think it was dull. They did think they might like it. Logically, seniors thought business school primarily trains students in practical skills. In the view of the seniors, this kind of pragmatic emphasis went along with a lack of choice in courses and a lack of creative and research opportunities. However, seniors thought the professors would be friendly and excellent teachers.

Seniors thought the costs of business schools force students to go into debt, but not defer marriage. Logically enough, seniors thought that business school students are more concerned with making money than in helping people. More seniors felt that Blacks and women did not face discrimination getting into business schools.

Graduate Schools of Education. Senior opinion was split on many items about graduate schools of education. Therefore, we need to remember the results of other schools to interpret them a little better. Thus, while many seniors thought the academic demands were high, they were less likely to believe they were high in schools of education than in any of the other schools. Seniors also tended to be positive about the faculty and the opportunities of the curriculum, but less than in some other schools. They also seemed to be ambivalent about the course work, describing it as neither full nor stimulating. Seniors did believe the curriculum was primarily pragmatic. Seniors regarded education professors as friendly and good teachers. Seniors thought that graduate education students were concerned with helping people. They thought the students need not defer marriage. Seniors did not believe that Blacks and women would have difficulty getting into these schools.

In short, seniors seemed to think graduate schools of education are much like the career of school teaching--comfortable, although with some demands, and filled with people concerned with other people.

The views of seniors reported in this chapter were, of course, general perceptions. They were not seniors' ideas about a particular school or a particular job situation. For that reason, some of the results must be considered as stereotypical conceptions. Furthermore they were the views of seniors, not those of people in the schools or in the field. However, within

these limitations, the results do show what educated young people think of the schools and professions that were used in the items. We now need to study the effects such perceptions have on students' career choices. We also need to study how students' perceptions change when they actually attend a graduate or professional school.

Chapter 5

DECIDING ABOUT A FUTURE CAREER

Many things influence seniors' educational and vocational plans. Some may be indirect influences, such as those we studied in Chapter 2--family background, peer group influence, and so on; but a good many influences are direct and clear, one of the most important of these being finances. However, the first areas we are concerned with are the sources of information and advice that may have influenced the student. The sources students felt were important in their choices are shown in Table 5.1. Advice from friends and relatives and advice from parents were clearly the most important sources for most students, followed at a distance by advice from professionals in the field and advice from college counselors. The two least important sources for most students were visits from someone recuriting for a school, and publications of national test programs, such as GRE, LSAT, MCAT, etc. Of course, GRE does not provide publications directed toward the counseling of students, but the LSAT and MCAT programs do. A larger percentage of prospective law and medical school students indicated that the national test program publications were important. However, even among those students, the publications were a relatively minor source. Since the test programs now seem to be expanding and revising their publications, the survey taken in another year might show different results. However, it is unlikely that any publication will displace family, friends, professionals in the field or counselors as sources of information.

The pattern for all groups, just described, generally held true for each of the groups. There were some differences, however. Prospective graduate

Table 5.1

Importance of Ten Sources of Information in Planning Post-Graduation Career

Source	Post-Graduation Plans									
	Work	Military	Marriage	Grad. Arts Humanities	Grad. Bio. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total
Directories or guides to graduate or professional study	13	12	13	25	32	34	22	25	26	17
Publications of National test programs such as GRE, LSAT, MCAT, etc.	5	7	6	8	8	11	23	16	10	7
Advice from a counselor at my college	24	20	24	35	40	38	19	25	32	25
Advice from the university departments or schools I applied to	13	12	17	34	39	35	19	25	27	18
Advice from friends or relatives	55	51	58	58	53	56	62	57	57	54
Advice from parents	48	47	51	48	44	43	59	57	50	48
Advice from a graduate or professional school admissions office	11	10	12	27	24	24	21	28	25	15
Advice from a preprofessional advisor	15	12	14	19	20	19	17	30	21	16
Advice from a professional in the field (not a college professor)	37	33	33	33	33	34	44	51	45	36
Visit from someone recruiting for a school	12	8	10	6	6	7	10	4	11	10

Note: Figures show percentage of each group indicating source was important or very important. Options were "not important", "important", and "very important".

students in the biological, physical,and social sciences assigned relatively greater importance to directories or guides. All the prospective graduate groups assigned relatively greater importance to advice from counselors and the departments they applied to. Prospective law students placed relatively greater importance on advice from friends, relatives, parents, and professionals in the field. Prospective medical students also assigned relatively greater importance to advice from parents and professionals in the field, as well as greater importance to advice from preprofessional advisors and admissions officers. The differences between the fields are congruent with the greater attraction of the academic world to prospective graduate students and the greater attraction of their future professions to prospective professional school students.

These results indicate that most seniors seem to seek advice from other people rather than from impersonal sources such as directories. One implication is that, if we wish to improve the quality of guidance of seniors, we should try to make people better informed. That requires informing the educated public about post-baccalaureate options, as well as such obvious persons as guidance counselors, professors, etc.

Finances and Plans

Students must find ways to pay for their educations. They incur expenses and must meet them with some source of income. Students may seek aid from their families, spouses, banks, scholarships, fellowships, traineeships, assistantships,or jobs; each of these sources will presumably affect their desire and capability to continue college or seek advanced training. One might expect students' undergraduate indebtedness to affect their choices to attend graduate or professional school--the more the student owes, the more likely the student would seek work and the less likely he would plan more education. It is, therefore, surprising that, as shown in Table 5.2, the amount students

Table 5.2

Seniors' Current Financial Condition and Aid Requirements for Advanced Study

Undergraduate Indebtedness	Post-Graduation Plans: Work	Military Service	Marriage	Grad. Arts Humanities	Grad. Bio. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total
Amount borrowed										
None	51	51	55	57	54	52	60	63	54	53
$1 to $1,999	24	25	24	20	25	24	18	17	23	23
$2,000 to $4,999	19	20	16	18	17	18	17	15	17	18
$5,000 or more	3	3	3	3	3	3	4	2	4	3
Remaining to be paid										
None	36	39	42	39	41	38	42	48	40	38
$1 to $1,999	23	25	23	20	24	24	19	16	22	22
$2,000 to $4,999	18	19	15	17	15	16	15	15	16	17
$5,000 or more	3	2	2	2	2	3	2	2	3	2
Aid Needed for Attendance										
Amount needed										
None				12	9	11	17	13	13	12
$1 to $1,999				23	16	18	23	18	16	19
$2,000 to $2,999				19	22	19	17	19	14	18
$3,000 or more				18	36	29	32	38	22	27
Amount must borrow										
None				36	54	37	36	32	34	38
$1 to $1,999				23	19	24	35	33	20	24
$2,000 to $2,999				6	4	7	9	10	5	6
$3,000 or more				3	3	5	5	10	4	5

Note: Figures show percentage of each group indicating each amount.

had borrowed as undergraduates and the amounts remaining to be paid were very similar for students who planned to continue their educations and those who did not. A little over half of each group had borrowed nothing; about 20 percent had borrowed $2,000 or more. About 40 percent had nothing left to pay. (This is probably an underestimate; about 20 percent of the sample did not answer this question, presumably because they owed nothing.) About 20 percent still owed $2,000 or more.

Students differed in predictable ways when they indicated the amount they needed and the amount they would have to borrow to attend graduate or professional school. (These questions were asked only of those seeking advanced training.) Students who planned advanced work in the humanities and other professions indicated lower needs, or were uncertain, as suggested by their high non-response rate. Students who planned work in the hard sciences and medicine indicated higher needs. Students who planned advanced work in the biological or physical sciences most often indicated that they would not need to borrow anything. This is probably due to the greater amount of scholarship and fellowship money and the greater number of assistantships available to these students. In contrast, about half the prospective law and medical students indicated that they would need to borrow something.

The reasons for the differences described above become clearer when we examine the results presented in Table 5.3, which show income sources students thought would be important for their advanced study. Overall, the most common sources of support were family aid, personal savings, employment outside the university, and scholarships or fellowships from a school or department. Relatively few students anticipated support from veterans benefits or scholarships

Table 5.3

Importance of Sources of Financial Support for Graduate or Professional Study

Source	Post-Graduation Plans: Grad. Arts Humanities	Grad. Bio. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total of Groups
Parental or family aid	46	38	47	71	76	39	49
Spouse's employment	18	23	21	28	23	18	21
Scholarship, or fellowship from your graduate or professional school	37	46	43	33	46	26	36
Scholarship, fellowship, or award from outside the university	14	19	21	13	24	12	16
Loan from a bank, savings and loan association, or similar source	24	21	30	44	46	23	25
Loan from the school of your choice	17	15	20	31	38	15	20
Research assistantship or equivalent	13	41	28	4	13	12	18
Teaching assistantship or equivalent	32	47	33	5	8	17	24
Other university employment	23	20	26	16	17	17	20
Employment outside the university	39	32	40	53	32	35	38
Personal savings	43	46	47	62	19	40	47
Veteran's benefits	3	4	6	5	2	5	4

Note: Figures show percentage of each group that indicate each source was a minor source or a major source. The options were "Not a source" "Minor source" and "Major source."

from outside the university. But there are major differences within this general pattern. Obviously, prospective graduate students were much more likely than prospective professional school students to consider teaching assistantships as sources of income. Students planning graduate study in the arts and humanities were less likely than most students to consider spouses' employment, loans from banks, or loans from schools as sources of support. Prospective graduate students in the biological or physical sciences less often thought family aid or loans would be sources of support, but more often thought that scholarships or fellowships from their graduate school, and research or teaching assistantships would be sources of support. Students who planned graduate work in the social sciences also fairly often included assistantships among their sources of income. Prospective law students relatively frequently believed their sources would include family income, loans, and, particularly among the men, spouses' employment, employment outside the university, and personal savings. Prospective medical students also relatively frequently cited family aid and, particularly among the men, loans among their sources of support, but less frequently mentioned employment outside the university or personal savings. They also fairly often mentioned scholarships or fellowships from outside the university. Students who planned to study other professions are distinguished by their low profile--they seldom mentioned any of the sources.

These expectations for financial support seem generally accurate, when compared to the results of the surveys by Creager (1971) and Hunter (1967). Those studies indicated that advanced students do, in fact, support themselves in much the same way that the sample seniors expect that they will. The differences between fields also seem to be much the same.

Future Educational Plans of Students Planning to Work, Enter the Military, or Marry

Most seniors who did not plan to seek advanced training immediately after graduation intended to seek it eventually, as shown in Table 5.4. In fact, only about a tenth give a definite "no" to the question of future advanced training. Between 20 and 40 percent stated they had definite plans for further academic work.

When asked why they were not currently planning further study, these seniors gave answers that had logical relations to their plans. Thus, those who planned to work said they were anxious to enter the job market, those who planned to enter the military cited military obligations, and those who planned to be married mentioned family responsibilities. When the reasons that bore obvious relations to students' plans are accounted for, three additional reasons were frequently cited: am tired of being a student, simply do not want to, and, especially among women who planned to work, cannot afford it. These seniors considered four other reasons unimportant: low grades, low test scores, discouragement by undergraduate faculty, and rejection by a graduate or professional school. They seemed to be emphasizing the rational, positive reasons for doing what they planned to do. They said they were not interested in further education, and they couldn't afford it in any case. They also did not consider themselves as failed aspirants for further education, and the great majority of them probably did not even apply, thus accounting for some of their answers. They seemed to be saying that they intended to work, enter the service, or marry, and that further education was just not relevant to them at that particular point in their lives.

Table 5.4

Educational Plans of Students Not Pursuing Advanced Study the Following Fall

Do you plan advanced study in the future?	Post-Graduation Plans			Total of Groups
	Work	Military	Marriage	
No	9	7	10	10
Possibly, after I work for a few years	27	9	20	26
Possibly, after I finish military service	1	26	1	4
Possibly, but I have no idea when	12	8	14	14
Definitely, after I work for a few years	27	5	19	23
Definitely, after I finish military service	1	29	2	4
Definitely, but I have no idea when	11	5	10	9

Note: Figures show percentage of each group indicating plan.

Reasons for Not Continuing to Advanced Education

Reason	Post-Graduation Plans			Total of Groups
	Work	Military	Marriage	
Simply do not want to	33	18	30	34
Can enter and succeed in my field without further education	21	12	19	21
Cannot afford it	36	20	32	35
Undergraduate grades are not high enough	10	11	7	10
Am tired of being a student	44	30	38	45
Have family responsibilities	16	6	28	17
Low admission test scores (GRE, LSAT, etc.)	2	2	1	2
Discouraged by undergraduate faculty	3	2	2	3
Anxious to enter job market	24	9	19	22
Have not been accepted by any of the graduate or professional schools of my choice	3	2	1	2
Have military obligations	5	77	5	13
Other	17	5	16	16

Note: Figures show percentage of each group indicating each reason was important. Instructions were to indicate "all that are important."

Applying for Advanced Study

When college seniors decide to apply to an institution offering post-baccalaureate education, they still need to make many decisions: where to apply, how many places to apply to, whether to attend full- or part-time. The rest of this chapter is concerned with how seniors make these decisions. Results will be presented exploring their reasons for attending, their experiences in applying, and their reasons for choosing particular schools or departments. First, however, it seems useful to have some basic factual information about the application process.

As shown in Table 5.5, virtually all of the seniors who planned further education had applied to at least one institution at the time of the survey in May and June of 1971, and most of them had been accepted by one or more. A sizable number had been offered financial aid. Most of these seniors had never applied for advanced study in another field. Most planned to attend graduate or professional school full time.

These simple results become a little more complicated when we turn to the differences between areas. Students who planned to go on to law or medical school applied to more schools, those who planned to go on to graduate study in the arts and humanities or to other professional schools applied to fewer schools. Most students seemed to have gained admission, whatever their area. Students who planned to go to law or medical school were less likely to have had an offer of aid from an advanced institution; those who planned to study biological or physical science were more likely to have had an offer. In fact, some 60 percent of the future hard science students had at least one offer of aid.

Now we come to an area with many myths and stories--the extent to which students in one field apply to another. Some people think that many students

Table 5.5

Seniors' Applications for Advanced Study and Results of Applications

Basis students plan to attend	Grad Arts Humanities	Grad Biol Phys Sciences	Grad Soc. Sciences	Law School	Medical School	Other Prof. Schools	Total of Groups
Full time	62	77	70	88	94	54	70
Part time	13	8	9	4	0	16	10
Number of institutions applied to							
None	3	2	3	1	0	3	2
1 or 2	49	42	43	26	20	48	41
3 or more	28	47	40	67	75	23	41
Number of offers of acceptance							
None	9	8	10	16	14	10	11
1 or 2	50	51	48	53	61	46	50
3 or more	14	26	20	19	19	12	17
Number of offers of financial aid							
None	36	23	39	62	58	37	40
1 or 2	30	45	30	15	25	23	28
3 or more	3	15	7	5	5	4	6
Ever applied for advanced study in field other than one student is planning to attend							
No	74	79	73	85	84	65	75
Yes--a law school	1	1	4	1	1	2	1
Yes--a medical school	1	5	1	1	1	1	1
Yes--a graduate school	2	2	4	4	6	4	3
Yes--a business school	1	1	1	2	0	1	1
Yes--some other kind of school	2	2	3	1	5	1	2

Note: Figures show percentage of each group indicating each answer to each question. The percentages who did not answer the questions are not shown.

in someone else's field only went into it because they weren't accepted in theirs. The results shown in Table 5.5 don't support this idea. For example, while 5 percent of the prospective graduate students in the hard sciences said they had applied to medical school, 6 percent of the future medical students said they had applied to graduate school. Likewise, 4 percent of the future law students had applied to a graduate school, and 4 percent of the future graduate students in the social sciences had applied to a law school. The percentages are small, and the crossovers about equal, which would not be true if large numbers of students entered fields as second choices. Finally, students who planned to study law or medicine were somewhat more likely to plan to attend school full time, probably because these schools usually require students to attend full time.

Reasons for planning advanced work. Why do students decide to apply to graduate or professional school? We have already seen some indirect answers to that question in the results for the background, self-conception, and work-value items. This section reports the results of an attempt to get a direct answer by asking students to rate the importance of nine factors on their decision to apply to graduate or professional school. The results, shown in Table 5.6, indicate that most seniors assigned the greatest importance to their interest in learning more about their field and the fact that their desired vocational fields require advanced degrees. Three other factors were also important, although to a lesser degree: improving chances of receiving a good salary, promotions, etc.; parents' encouragement; and the greater prestige that advanced training provides. Two factors were unimportant to the majority of students: postponing military obligations and inability to find satisfactory employment.

Table 5.6

Importance of Nine Factors in Seniors' Decisions
to Attend Graduate or Professional School

Factor	Post-Graduation Plans						
	Grad. Arts Humanities	Grad. Biol. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total of Groups
Desired vocational field requires an advanced degree	64	76	76	84	81	56	70
Improve chances of receiving a good salary, promotions, etc.	47	58	54	67	48	60	56
Parents' encouragement	41	45	39	60	61	39	45
Greater prestige	31	42	37	60	49	36	41
Encouragement of college faculty	51	54	51	26	30	32	41
Postpone military obligation	3	7	4	5	17	6	6
Unable to find satisfactory employment	24	23	25	19	11	22	21
Interest in learning more about my field	76	87	82	66	84	65	75
Received a fellowship or scholarship	26	45	27	7	10	18	23

Note: Figures show percentage of each group indicating factor is important or very important.
Options were "Not important," "Important," and "Very important."

There were some large differences among fields. Prospective graduate students, compared to prospective professional school students, assigned considerably more importance to encouragement by college faculty, and to obtaining scholarships or fellowships. This last factor was particularly important to prospective graduate students in the biological or physical sciences. Prospective graduate students in the arts and humanities were distinguished by the relatively smaller importance they placed on improving their chances of receiving a good salary or gaining greater prestige. These two factors were assigned relatively greater importance by prospective law students. Compared to other students, prospective law students also considered parental encouragement and their field's requirement of a degree more important, and interest in learning about their field less important. The future male law students placed particular weight on improving their chances for a good salary and the least weight on the encouragement of college faculty. Prospective medical students also emphasized the fact that their field required a degree and, particularly among the men, their parents' encouragement of their plans. Finally, the degree requirement seemed less important to prospective students of other professional schools.

All of these differences are plausible and are in line with trends noted earlier. The mosaic of characteristics and motivations form a consistent pattern--prospective law students value prestige and advancement, whereas prospective social science students value work with people. And this pattern expands our understanding of the way people match their motivations with their career choices.

Views of the Admissions Process

Students' perceptions of the admission process may affect their feelings about the fairness of the process, where they apply, and even whether they

apply. Furthermore, departments and schools may be concerned with the image they project--the things students believe the institutions think are important. We therefore asked students to rate the extent to which they thought that fourteen factors helped or hindered their chances of acceptance by a graduate or a professional school. To highlight the results more clearly, Table 5.7 shows the percentage of each group indicating that the factor "helps a great deal." In this way, only the factors seniors thought were critical are shown.

Most students considered good overall grades, good grades in major fields, and strong faculty recommendations as most important. The exception was that potential law students did not think that major field grades and faculty recommendations helped a great deal. Most students also assigned relatively little importance to a well-rounded undergraduate course pattern, high scores on tests other than admissions tests, unusual jobs or other experiences, outstanding student leadership, being a woman, and geographic background. Taken together, these results suggest that seniors by and large felt that graduate and professional schools look for good grades and good recommendations, and pay relatively little attention to such frequently mentioned factors as well-rounded course pattterns and leadership.

The results for the questions on being Black, Chicano, Puerto Rican or American Indian, and being a woman deserve more detail. Few students in any group thought that belonging to a minority ethnic group hindered one's chances. In fact, most potential graduate students thought that it neither hindered nor helped. However, some 58 percent of potential medical students and 61 percent of potential law students actually felt it helped some or a great deal. Thus most students planning advanced study (admittedly predominantly white) thought

Table 5.7

Importance of Fourteen Factors in "Helping One's Chances of Acceptance to Graduate or Professional School"

Factor	Post-Graduation Plans: Grad. Arts Humanities	Grad. Biol. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total of Groups
Good over-all college grades	65	73	69	80	84	58	69
Marked improvement in recent grades	28	32	34	29	33	30	30
Good grades in major field	63	71	64	37	67	48	57
Relationship between college major and graduate or professional field	34	37	29	12	26	22	26
Broad (well-rounded) undergraduate course pattern	14	11	13	15	18	10	13
High scores on admissions test	31	34	41	78	45	33	41
High scores on other tests	18	15	21	18	14	14	16
Strong faculty recommendations	51	59	50	21	47	33	42
Good interview	28	30	28	13	53	24	28
Unusual job or other experience	10	13	11	6	15	9	10
Outstanding student leadership	9	8	11	15	13	10	10
Being Black, Chicano, Puerto Rican or American Indian	8	8	11	29	24	10	13
Being a woman	1	1	2	9	5	2	3
Geographic background	1	1	2	4	7	2	2

Note: Figures show percentage of each group indicating factor helps a great deal. Options were "Hinders one's chances," "Neither helps nor hinders," "Helps some," and "Helps a great deal."

that coming from a minority group is, if anything, an advantage when applying for post-baccalaureate education. In contrast, few students in any group considered being a woman as an advantage. Most seniors thought being a woman neither hinders nor helps, but about a quarter thought that it hinders one's chances. Among probable medical students, this figure reached 38 percent. Thus, it appears that these students considered admissions procedures more likely to be tainted by sexism than racism.

The "generalist" pattern we have noted before in potential law students also appeared here. They tended to downplay the importance of good grades in one's major field, the relationship between college major and professional field, and faculty recommendations. Perhaps for this reason they placed considerable importance on high admissions test scores. They may have felt that, in the absence of other factors, grades and test scores provide tangible evidence of their capacity for the law. Interestingly, they considered the interview relatively unimportant in contrast to prospective medical students who thought it was quite important.

Seniors' views of the admissions process can be compared with Richard Burns' (1970) study of the criteria used by graduate institutions. Burns found that "Seventy-seven percent of the institutions regard the college transcript as highly important, and 51 percent regard the completed application as highly important. Seventeen percent of the institutions view letters of recommendation from undergraduate instructors as highly important. An equal percentage consider GRE Aptitude Test scores as highly important." Burns found that such criteria as personality tests, biographical sketchs, and academic rating forms were unimportant. Thus, while seniors' perceptions of the admissions process were generally in line with the reports of the

institutions on the importance of various factors, the seniors seemed to believe that more weight was given to admissions test scores and faculty recommendations than the institutions reported.

In sum, students planning advanced work seemed to feel that admissions are primarily based on academic success and not on geographical background and the like. They also felt that little importance was placed on well-roundedness, leadership, and other traits that are supposed to be important.

Choosing a Department or School

The reasons why students choose a particular department or school affect their expectations of the institution and may shape the experiences they will seek out (Pace, 1966). Research at the undergraduate level has shown that similar reasons are related to students' backgrounds, plans, and achievements. For example, students from lower socioeconomic backgrounds tend to be more likely than students from higher socioeconomic background to emphasize considerations of costs, location, and other pragmatic factors. Students from higher socioeconomic backgrounds are more likely to emphasize the quality or prestige of the school, its social life, and particular programs (Baird, 1967; Hoyt, 1968; Eichorn & Kallas, 1962; Rossi & Coleman, 1964). Students with high academic aptitude tend to emphasize the presumed intellectual quality of the school (Baird, 1970a; Holland, 1959; Nichols, 1966; Trent, 1965). Many other student characteristics have been related to the reasons they choose colleges (Feldman & Newcomb, 1969). In addition, using the college as a unit, Hoyt (1968) found many relationships between the reasons why students choose particular colleges and the characteristics of those colleges, suggesting that students do attend colleges that fit their needs.

The things a student emphasizes in his choices of an institution may influence what he will feel about his department, school or even his profession. For example, students who choose institutions for practical education may tend to be narrow in their interests, concerned only with the "training" aspects of their education. They may expect to be provided solely with practical instruction (Hoyt, 1968). They may expect to get detailed answers, facts, and practical skills, and may feel that some "general" courses are irrelevant to their needs. Other students choosing institutions for other kinds of reasons will show different patterns. But the main issue is whether the reasons students choose an institution are realistically related to the educational goals of the institution. The greatest question for an institution or field is whether its classes, activities, curriculum,and student groups will form an environment consistent with the reasons students choose the institution. Data about the reasons students choose an institution can also suggest the image that the institution or field is projecting, the image that seem to attract students, and, with the other results we have reported, the kinds of students the institution or field attracts.

The main reasons students choose colleges seem to fall into six categories (derived from Richards and Holland, 1966): the college's prestige or academic quality; pragmatic considerations such as its closeness to their homes, the practical nature of the curriculum, and cost; the social emphasis of the college; the religious orientation of the college; the size of the college; and the advice and influence of others, such as parents and friends. Since this last category was covered in other questions, no questions were devoted to it in this section. Questions dealing with the other types of reasons were included, along with some that might be important only in particular fields.

Table 5.8

Importance of Twenty-one Factors in Choice of a Graduate or Professional School

Factor	Post-Graduation Plans: Grad. Arts Humanities	Grad. Biol. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total of Groups
The high caliber of the program offered in my field	66	75	70	78	80	57	68
The chance to work under a particular faculty member	27	31	26	5	10	14	19
Large department or professional school	26	33	24	20	33	21	25
Small department or professional school	20	21	22	26	18	16	20
Advice of a teacher at another school	18	22	23	15	18	11	17
I had attended the university as an undergraduate	24	26	18	14	14	26	22
Desirable location -- urban	31	21	31	50	37	25	31
Desirable location -- suburban or rural	19	28	20	17	14	17	19
Offer of financial assistance	31	55	34	16	19	24	30
As a resident of the state, I do not have to pay out-of-state tuition fees	17	19	16	25	33	29	20
Close to my home	24	23	26	31	29	27	27
Excellent chances of being admitted	46	48	46	56	55	40	47
Friendly social climate	41	43	45	45	47	36	41
Liberal racial attitudes	25	19	29	26	26	11	23
School has reputation for being active in social causes	15	9	21	27	17	12	16
Church-related institution	10	5	9	3	3	4	6
Reputation as a "teaching" school	20	19	20	23	40	21	22
Reputation in research and research facilities	25	58	38	16	40	26	33
Prestige of institution	46	53	49	64	55	44	50
Can earn a degree in a shorter time	14	13	14	3	12	18	13
Unstructured grading system	5	4	6	5	26	3	7

Note: Figures show percentage of each group indicating each factor is important or very important. Options were "Not important," "Important," and "Very Important."

When we asked students to rate the importance of twenty-one factors in choosing a graduate or professional school, one factor stood out--the high caliber of the program offered. This factor was by far the most important in every field, indicating the students' concern for the quality of their education. A related factor, prestige of the institution, was also frequently considered important. Two other frequently cited factors suggest somewhat different reasons for choices--the senior's belief that he had an excellent chance of being admitted, and his expectation of a friendly social climate. Students might be expected to apply to schools they think they can get into and schools with a congenial atmosphere. Some factors were unexpectably unimportant to most students: advice from a teacher at another school, suburban or rural location, church relation, and programs that allow a degree in a shorter time. Unstructured grading systems were unimportant to all students, except some prospective medical students. Except for prospective social science and law students, most seniors considered a schools' reputation for being active in social causes unimportant.

Once again, the students planning to enter the six areas differed in what they considered important. Compared to students who planned to enter professional schools, students who planned to enter graduate schools assigned more importance to the chance to work under a particular faculty member and offers of financial aid. Future graduate students, compared to other students, gave greater consideration to the free tuition sometimes offered to residents of the state, the school's reputation as a "teaching" school, and unstructured grading systems.

To summarize, seniors who planned to go to graduate or professional schools gave the greatest attention to the quality and prestige of the

institutions they considered. The chances of being admitted and the warmth of the institution were also important. Seniors gave little attention to such innovations as shorter degree programs and unstructured grading systems. There were many plausible differences between students who planned to study different fields, most relating to the distinct requirements of each field.

Experiences in Applying

When students did apply to graduate or professional school, most reported they got a quick response to their initial request for information, and were subsequently treated as individuals, as shown in Table 5.9. Few students reported having trouble finding out about specific requirements for admission, and few felt that deadlines were too early or that the school may have discriminated against them. However, about a quarter of t e potential medical students reported feelings of possible discrimination. They also frequently felt that they had trouble getting as much information about the school as they felt they needed, and, along with prospective law students, frequently felt that the factors the school considered important for admission were never made clear. Many prospective medical students seem to have doubts about how admissions decisions are made in their field.

The results presented in this chapter suggest that students view admissions as serving and emphasizing traditional academic values. Actual attendance will probably be related to students' academic backgrounds as well as their financial situations. The analyses reported here do not examine differential admissions practices. (The chapters by Rodney Hartnett and Mary Jo Clark provide more information related to the particular admissions problems of Blacks and women.) The results in this chapter also suggest that seniors did not use some sources of information, but instead relied on the

Table 5.9

Frequency of Experiences in Applying to Graduate or Professional School

Experience	Post-Graduation Plans: Grad. Arts Humanities	Grad. Biol. Phys. Science	Grad. Soc. Science	Law School	Medical School	Other Prof. School	Total of Groups
I had trouble getting as much information about the school as I needed	24	31	32	36	41	21	28
I got a quick response to my initial request for information	64	76	71	83	84	56	69
I felt I was treated as an individual	58	69	63	66	77	52	62
I had trouble finding out what the specific requirements for admission were	23	23	26	35	18	20	23
The application deadlines were too early	28	31	34	26	24	20	26
The factors the school considered important for admission were never made clear	29	36	37	52	49	25	35
The school may have discriminated against me	8	11	12	19	26	6	12

Note: Figures show percentage of each group indicating experience happened at some or most of the schools applied to. Options were "None of the schools I applied to," "Some of the schools I applied to," and "Most of the schools I applied to."

help of their families, friends, and other people they knew personally. Seniors may have felt that they could not find the kind of information they wanted in formal sources. These trends underline the need for good articulation between undergraduate and postgraduate institutions as well as updated information about institutions. Such information should include data on matters that seniors are interested in, perhaps including chances of admission, the schools' social and intellectual climate, and the character of the program.

Chapter 6

CONTRASTING PLANS OF MEN AND WOMEN

Most of this report considers the characteristics of college seniors, men and women together, in relation to their immediate postcollege plans for work or study. In contrast, this chapter looks more closely at the postcollege plans and the ways these plans varied with the sex of the respondents. From Chapter 2, we know that more men than women planned to study in the first year after college and that women were attracted to some areas of study more than others. This chapter considers similarities and differences between the sexes in the fields selected for advanced study and the timing of study in relation to undergraduate major fields, degree aspirations, undergraduate grade achievement, marital status, and age.

Background Factors

Two out of five respondents to the senior questionnaire were women. They tend to be slightly younger than the men, possibly because of prior military service among the men, and the proportion of Blacks among the women is higher. Proportionately more men were married but more women were engaged; taken together, these data suggest that about the same proportion will be married within a few months after completing the baccalaureate degree. There do not appear to be marked differences in the family backgrounds of the men and women, though the women had slightly better educated parents, reported less full-time work experience, and took out fewer loans to pay for their undergraduate education. Men reported a few more changes in major field and vocational choice during college. As expected, the women reported that they earned higher grades both in all college courses and in their major fields.

Details of these characteristics by sex are contained in Table 6.1. The reported differences are consistent with most existing profiles of college students (Davis, 1964; Astin and Panos, 1969; Sharp, 1970; Cross, 1971) though on some characteristics the differences between men and women are not as great as previously reported. This may reflect increasing similarity between men and women college graduates as institutions of higher education make conscious efforts to rate women more equally, and it may also result in part from some bias among respondents in favor of those who were more oriented toward advanced study. In any event, one must conclude that these women college seniors face the future with about the same personal advantages and handicaps as their male classmates--age, marital status, socioeconomic background, work experience--and with some definite advantages in their undergraduate grades. It seems unlikely that these background factors account for many of the differences observed in the career plans and degree aspirations of college men and women.

Table 6.1

Characteristics of Respondents

(Percents)

Characteristic	Women (N=8,333)	Men (N=12,315)
All respondents	40	60
Age		
21 or younger	9	5
22 - 23	79	72
24 - 29	7	18
30 and older	5	4
Race		
White	88	93
Black	8	3
Other	4	4
Marital Status		
Single	61	61
Engaged	17	11
Married	20	27
Widowed or divorced	1	1

(continued on next page)

Table 6.1 (continued)

Characteristics	Women	Men
Father graduated from college	36	33
Mother graduated from college	27	23
Parents' income		
Under $12,000	34	38
$12,000 - 20,000	23	28
$20,000 and over	23	24
Don't know and no answer	20	11
Religion of rearing		
Protestant	58	53
Roman Catholic	23	27
Jewish	7	8
Other religion	8	8
Work experience		
Full time (other than summer)	11	13
Part time while in college	62	57
None	27	24
Amount borrowed to complete undergraduate education		
None	56	51
Less than $2,000	22	24
$2,000 - $5,000	16	20
More than $5,000	3	4
Amount remaining to be paid on undergraduate loan		
None	37	39
Less than $2,000	21	23
$2,000 - $5,000	15	18
More than $5,000	2	3
Changed major field once or more during college	42	47
Changed vocational choice once or more during college	48	54
Discontinued education for more than six months between high school graduation and senior year in college	16	21
Grades in all courses		
C or below	6	13
C+	26	32
B	35	28
B+ or better	30	25
Grades in major field courses		
C or below	3	6
C+	9	16
B	31	32
B+ or better	55	45

Note: Percentages within each item may not total 100 because some respondents omitted each item and because of rounding.

Immediate Plans

The college seniors participating in this survey were asked to indicate what they expected to be doing in the fall of 1971, and to indicate more than one activity if they expected to be doing two things simultaneously. Table 6.2 summarizes their responses, first reporting their multiple responses and then assigning each person to a major activity and counting him or her only once. Overall, about one in five respondents indicated more than one anticipated activity.

Three-quarters of the women and slightly more than half of the men planned to work full-time, and in each case two out of three reported that it will be work at a job that is expected to become a career. About 14 percent of these women workers and 18 percent of the men workers also planned to study, mostly in arts and sciences or education among the women and in arts and sciences or business among the men. As indicated in the last column of Table 6.2, women make up almost half of these college seniors who expected to be employed full-time in the year following graduation.

Men and women who expected to enter the military seem least apt to plan another activity as well, though about five percent of these men indicated that they also planned to undertake academic or professional studies.

Plans to study in the arts and sciences (humanities, arts, social sciences, biological or physical sciences) were reported by about equal proportions of men and women, though slightly more men (14 percent vs. 12 percent of the women) indicated graduate study in these areas as their primary activity in the following year. In contrast, more than twice as many men planned professional study (business, law, medicine, engineering,

Table 6.2

Expected Activity in the First Postcollege Year

	Women (N=8,333)		Men (N=12,315)		Total (N=20,732)[1]		Percent of total in each activity who are women
All Plans	N	%[2]	N	%[2]	N	%[2]	
Working full time	6,225	75	6,369	52	12,594	61	49
Military Service	48	1	1,849	15	1,897	9	3
Graduate Study in the arts and sciences	1,499	18	2,249	18	3.748	18	40
Professional study	927	11	3,159	26	4,089	20	23
Marriage	1,677	20	1,062	9	2,739	13	61
Plans Without Duplication (in order of exclusion)	N	%	N	%	N	%	
Working full time	6,225	75	6,369	52	12,594	61	49
Military Service	24	**	1,487	12	1,511	7	2
Graduate study in the arts and sciences	1,033	12	1,765	14	2,798	14	37
Professional study	524	6	2,319	19	2,843	14	18
Marriage	222	3	16	**	238	1	93
Omitted the item	305	4	359	3	748	3	41
Total	8,333	100	12,315	100	20,732	100	

** Less than 0.5 percent

[1] 84 respondents did not indicate sex and are omitted from the tabulations for men and women.

[2] Percentages do not add to 100 because some respondents indicated more than one activity.

education, social work, arthitecture, or dentistry) and more than three times as many men (19 percent vs. 6 percent of the women) indicated professional study as their only activity in the following year. Women make up only about 20 percent of all seniors who plan immediate study in one of the professions.

But marriage was the duplicate activity most frequently selected by both men and women respondents, with 20 percent of the women and 9 percent of the men checking this option. However, only three percent of the women and less than 0.5 percent of the men indicated marriage as the only activity anticipated in the coming year. Among all women, 20 percent of those planning to work full-time also checked marriage, while 10 to 13 percent of those planning further study did likewise. About the same percentages in each group reported that they were already married. Among the men, 10 percent of those planning to work full-time also expected marriage, while 7 to 8 percent of those expecting to study indicated the same. Even more of the men, about one-third of those planning work and one-fifth of those planning study, were already married.

The pattern of responses suggests that men and women planning to work or study and also to be married in the coming year checked both activities, and respondents who were already married indicated marriage as a post-college activity only if they expected to become a full-time homemaker. This interpretation is supported by the fact that 70 percent of the 222 women who checked marriage as their only immediate activity were already married.

Though more women than men expect to be full-time homemakers in the first year after college graduation, the proportion appears to be well

below five percent, and it cannot be considered a major alternative for most women college seniors, whether single, engaged, or already married. Therefore, in several of the following tables, the marriage option has been omitted and postcollege plans are organized in terms of full-time work (including military service), graduate study, or professional study. A later analysis will consider the effects of marriage on these plans.

Fields of Graduate Study

Table 6.3 details the specific plans[1] of those seniors expecting to study in the following year and also indicates the proportion who plan to study full-time and the percent of women students expecting to enter each field. Looking at the last column first, the women are underrepresented in overall plans to study (31 percent, compared to 40 percent of all respondents in the study) but overrepresented in plans to study education, social work, arts or humanities, or social science. In law or business, one might expect to find about one woman among every 10 entering students. Even fewer women will be found in architecture, dentistry, or engineering. Enrollees in the sciences and medicine are still predominantly men, though the proportion of women in medicine shows some increase in comparison to figures collected only a few years ago.[2]

---

[1] In this table and the one to follow, plans including multiple responses are reported (rather than mutually exclusive plans) since these data seem to reflect most accurately the totality of activities anticipated by the respondents.

[2] Unfortunately, it is not possible to distinguish between plans to study biological and physical sciences in these data. Other studies suggest that women are about proportionally represented in the biological sciences and only slightly represented in the physical sciences.

Table 6.3

Planned Fields of Graduate or Professional Study
in the First Postcollege Year

(Percentages)

Planned Field of Study	Women[1]	Men[1]	Percent who will study full-time		Percent of total in each activity who are women
	(N=2,372)	(N=5,272)	Women	Men	(31)
Arts or humanities field	29	12	56	68	53
Social science field	22	13	62	77	43
Biological or physical science field	13	19	71	79	23
Education	22	6	37	45	63
Medicine	6	13	85	96	17
Law	5	17	85	88	11
Business	3	13			11
Engineering	1	8			4
Social work	3	1	49	62	60
Dentistry	*	2			5
Architecture	*	1			9

*Less than 0.5 percent.

[1]Percents do not add to 100 because some respondents indicated more than one field of study.

The general pattern of study plans and, by implication, career directions, is very similar to patterns reported by Davis (1964; 1965), Sharp (1970), and others from earlier surveys. For the most part, women expect to study in the humanities, arts, social sciences, and education. Men are more evenly distributed among the arts and sciences and professions, and dominate in all listed professional fields except education and social work.

More men than women plan to study full-time (overall, 75 percent of the men, 58 percent of the women) in every field, though obviously such fields as medicine and law demand full-time study by most participants.[3] We know from other studies that master's degree students are most likely to study part-time, and we will see in Table 6.8 that among these seniors who will study immediately, twice as many women expect a master's as their highest degree. It seems likely that much of the sex difference in attendance patterns within fields of study is related to these differences in degree aspirations.

In addition to the profile presented in Table 6.3, about a third of the women who planned to study immediately said they also planned to work full-time, while about one fifth of the men indicated full-time work in addition to these study plans. Neither set of respondents reported a terribly high degree of confidence in their study plans: 55 percent of the women and 63 percent of the men said their plans were definite, 36 percent of the women and 31 percent of the men said they were fairly definite but subject to change. Some of this uncertainty probably stems from the fact that only about 60 percent of the women and 70 percent of

---

[3] A relatively large proportion of respondents, up to 30 percent of both men and women who indicated plans for further study, did not respond to the question about full-time vs. part-time study. Therefore, these figures are probably fairly conservative estimates of the proportion of new students who might be expected to study full-time.

the men reported that they had already been accepted by a graduate school. (See Table 7.10 in the next chapter for responses by sex concerning applications, acceptances, and offers of financial aid.)

Do women anticipate sex discrimination in the admissions process of some graduate and professional programs? The data summarized in Table 6.4 suggests that this may be the case. Though neither men nor women expect much sex discrimination in admission to graduate schools of arts and sciences or education, both feel that it is more difficult for women to gain admission to professional schools of business, medicine, and law, and this impression of discrimination is particularly prevalent among women in relation to medicine and law. The facts aside, this was the feeling among all the respondents, whether they planned advanced study or not, in the spring of 1971. The effect of this impression cannot be determined from these data, but it is not unreasonable that it discouraged or deterred more women than men from applying for further study in these fields. In terms of possible actual discrimination, other analyses indicate that almost three times as many women applicants suspected discrimination in response to their applications to study law (44 percent of the women applicants vs. 16 percent of the men applicants). More women applicants also thought they might have been discriminated against in medicine (31 percent of the women vs. 23 percent of the men; other professional fields (13 percent of the women vs. 6 percent of the men) and natural sciences (16 percent of the women vs. 9 percent of the men). Other data concerning experiences with graduate and profession schools are reported in Table 5.9.

Our discussion so far has been concerned primarily with those students who said they plan to pursue some kind of advanced study in the year

Table 6.4

Seniors Who Think It Is True that "Women Are Discriminated Against by the Admissions Policies" in Five Types of Graduate and Professional Schools

(Percentages)

Schools	Women	Men
	(N=8,333)	(N=12,315)
Medical school	52	38
Law school	52	37
Graduate school of arts and sciences	15	11
Graduate school of education	08	07
Graduate school of business	37	30

immediately after college graduation, comprising about 38 percent of all the seniors in the survey or 29 percent of the women and 43 percent of the men. But of course many of the remaining seniors plan to study sometime later, often after gaining work experience or when some money has been saved up or after a period of time away from being a student. The anticipated timing of study plans is discussed in relation to other factors later in this chapter, and is also presented by sex in Table 7 and Figure 7.2 in the following chapter. Table 6.5 summarizes the anticipated

fields of study indicated by all respondents to the question: "If you plan to attend graduate or professional school, indicate your planned field of study." Seventy-eight percent of all women and 82 percent of all men in the study answered this question, which suggests that only about half of the men and somewhat more than a third of the women who expect eventually to continue study have plans to do so immediately. This same general pattern was reported for college seniors ten years ago (Davis, 1964) when members of the class of 1961 said 33 percent of them expected to study during the next year and another 45 percent said they planned to study later.

The distribution of fields for eventual study as presented in Table 6.5 follows the same general pattern as immediate fields of study (Table 6.3) but indicates even more clearly the concentration of women in education and of men in business or law. Women make up a majority of the seniors expecting eventually to study home economics, nursing, library science, social work, education, and arts or humanities. Most of the students expecting to study engineering, business, law, medicine, biological and physical sciences, and other professional fields are men. Only in the social sciences, other health fields, and in the "undecided" group is the distribution about equal. Again, the results are quite similar to earlier surveys of graduate study patterns and career plans of men and women. For instance, Davis (1965, p. 47) reports that ten years ago women college seniors made up 70 percent of those planning careers in education, 53 percent of those in humanities, 14 percent of those in business, 9 percent of those in medicine, and 6 percent of those in law. Though our data suggest some increase in the proportion of women planning careers in law and medicine, there is still little evidence, at least in this kind of gross tabulation from large

Table 6.5

Planned Fields of Study by All Seniors Who Expect to Attend Graduate or Professional School at Some Time in the Future

(Percentages)

Anticipated Fields of Advanced Study	Women	Men	Percent of total planning study in each field who are women
	(N=6,515)[1]	(N=10,088)[1]	(39)
Arts and Humanities	16	8	58
Social Sciences	10	9	42
Biological and Physical Sciences	5	9	27
Education	32	7	73
Medicine	2	8	13
Law	3	14	11
Business	3	18	11
Engineering	*	9	2
Social Work	4	1	78
Nursing	4	*	98
Other Health Fields	3	2	50
Home Economics	3	0	100
Library Science	2	*	91
Other Professions (agriculture, dentistry, religion, unlisted fields)	5	9	24
Undecided	8	6	46
Total	100	100	

*Less than 0.5 percent

[1]Base N's are the total number of men and women who answered the question: "If you plan to attend graduate or professional school, indicate your planned field of study."

numbers of respondents, of any move toward an androgynous society in the area of career choice and training.

Undergraduate Majors and Postcollege Plans

Several earlier studies, particularly Davis (1964; 1965) and Sharp (1970), acknowledged the close relationship between the undergraduate major field and the graduate's postcollege plans, and organized some of their data on study plans and careers in relation to this variable. Though this is not the primary focus of the present report, this section summarizes the immediate plans of men and women college seniors in the spring of 1971 in relation to their undergraduate fields of study and compares these results with the earlier findings. In many cases comparisions are quite limited, however, because of different research strategies and different categories used to collect and summarize the data.

The overall distribution of seniors in major fields of study (the first two columns reported for women and for men in Table 6.6) is generally consistent with results from the annual survey of earned degrees conducted by the National Center for Educational Statistics, U.S. Office of Education. As expected, more than two-thirds of the women are concentrated in education, arts and humanities, and social sciences. About the same proportion of the men are concentrated in the social sciences, engineering, business, and the biological and physical sciences.[4] Women comprise more than 90 percent of the students in home economics and nursing, more than half of the students in education and arts and humanities,

---

[4] Arts and science majors total 54 percent of the women and 50 percent of the men in this study, compared with 39 percent of the class of 1961 as represented in the NORC survey (Davis, 1965, p. 237). This increase, with decreased emphasis on the professions may result from some shifts in the distribution of students across fields, different ways in which the data were gathered, or some response sampling bias in one or both studies. Most likely, all three factors are involved to some extent.

Table 6.6

Undergraduate Major Field of Study and Postcollege Plans

Undergraduate Major Field[1]	WOMEN N	Column Percent	Immediate Plans (row percents)[2] Full Work[3]	Grad. Study[4]	Prof. Study[5]	MEN N	Column Percent	Immediate Plans (row percents)[2] Full Work[3]	Grad. Study[4]	Prof. Study[5]
Arts and Humanities	1903	23	72	26	8	1311	11	64	28	18
Biological and Physical Sciences	768	9	62	30	14	2022	16	45	35	29
Social Sciences	1788	22	68	25	14	2776	23	58	24	28
Agriculture and Forestry	23	**	74	9	13	470	4	91	12	5
Business	257	3	90	2	16	2020	16	87	3	25
Education	2117	25	88	7	12	500	4	88	13	21
Engineering; Trade and Technical	25	**	60	4	48	2135	17	76	10	29
Home Economics	386	5	84	12	5	[illegible]	**	100	0	33
Nursing	370	4	92	7	5	11	**	100	36	9
Other Health Fields	229	3	82	11	11	242	2	89	7	12
Pre-professional	18	**	17	17	67	233	2	22	6	79
Unlisted Field	219	3	74	15	6	267	2	82	13	14
No Answer	230	3	69	18	12	325	3	70	19	18
Total	8333	100	76	18	11	12315	100	68	18	26

**Less than 0.5 percent.

[1]See Appendix A for a list of major fields included in each category.

[2]Row percents may not add to 100 because of overlapping plans.

[3]Full-time work includes military service.

[4]Graduate study plans include arts and humanities, biological and physical sciences, and social sciences.

[5]Professional study includes business, law, medicine, engineering, education, social work, architecture, and dentistry.

and less than 10 percent of the students in engineering, preprofessional fields, and agriculture or forestry.

Columns three through five for women and for men in Table 6.6 summarize the percentage of those in each major field who plan to work full-time, begin graduate study in the arts and sciences, or undertake some type of professional study in the first year after graduation. For both men and women, at least 75 percent of the seniors majoring in a professional field expected to be employed full-time right after college. It is not surprising that the graduates of programs such as business, education, home economics, nursing, and agriculture felt best prepared for the labor market. In contrast, almost 85 percent of the preprofessional majors planned to begin advanced study immediately. The number of students, particularly women, in preprofessional majors was small, but those who chose this area appeared to be strongly committed to further study. Those who chose atypical career fields may also be more apt to pursue advanced study immediately, as for instance more than 50 percent of the women in engineering and 45 percent of the men in nursing. But, in general, undergraduate majors in the arts and sciences are most apt to embark immediately upon graduate or professional study--more than half of the men and just under 40 percent of the women. Probably this reflects some combination of earlier commitment to advanced study, related to career choices that require postgraduate degrees, and lack of preparation for a job during the undergraduate educational experience. However, in every major field, except preprofessional for women and preprofessional and biological and physical sciences for men, at least three out of five graduates plan to work full-time in the coming year.

In general, these statistics are consistent with the immediate study plans of seniors ten years ago as reported by Davis (1965) and also with the advanced study actually undertaken by 1958 seniors in the first five years after graduation as reported by Sharp (1970). Sharp noted in her data that the patterns of advanced study in relation to undergraduate majors were quite similar for men and women, even though men usually enrolled twice as often as women (p. 8). These more recent figures suggest that the patterns are still similar, though the women are planning to enroll in arts and science graduate study programs in somewhat more equal proportions. We continue to find that men out-number women about two to one in professional study enrollments.

Several previous studies (for instance, Berelson, 1960, and Davis, 1965) note the variety of backgrounds from which students enter many graduate programs. The tabulations presented in Table 6.7 suggest that this continues to be true, though generally well over half of the seniors planning to study in each area were enrolled in closely related undergraduate major fields. Seniors can change career direction when they begin advanced training, but generally not without some loss of time. Only education seems to draw sizeable numbers of students from several different fields. Table 6.7 also demonstrates again that undergraduate programs in the arts and sciences are the primary origins of new students in professional fields as well as in the graduate schools.

Educational Aspirations and Postcollege Plans

Some seniors plan to enroll immediately in doctoral degreee programs; others expect to continue their studies only until they obtain a master's degree, or may even plan to take courses of interest without enrolling for

Table 6.7

Postcollege Study Plans and Undergraduate Majors

Major Field (No.)	Graduate or Professional Field: Arts and Humanities F (698)	Arts and Humanities M (625)	Biol. and Phys. Sci. F (300)	Biol. and Phys. Sci. M (982)	Social Sciences F (518)	Social Sciences M (675)	Law F (107)	Law M (872)	Medicine F (142)	Medicine M (694)	Education F (518)	Education M (300)
Arts and Humanities	64	53	3	1	9	5	17	12	4	3	21	14
Biological and Physical Sciences	2	5	67	66	3	4	5	3	44	57	5	11
Social Sciences	12	21	4	3	64	72	65	54	9	10	17	27
Agriculture and Forestry	0	1	1	5	0	1	0	*	1	2	*	1
Business	1	4	0	*	*	4	6	20	1	0	1	5
Education	14	4	5	2	9	3	1	1	3	*	47	30
Engineering; Trade and Technical	0	4	*	16	0	*	0	4	0	3	*	7
Home Economics	1	0	3	0	6	0	1	*	1	0	2	0
Nursing	*	*	4	*	2	0	1	0	10	0	1	*
Other Health Fields	1	0	7	2	0	*	0	*	16	4	0	0
Pre-professional	0	0	1	1	0	*	1	*	1	18	0	*
Unlisted Field	4	4	4	2	4	3	1	2	1	1	1	1

*Less than 0.5 per cent

any degree. The kind of degree that is anticipated, with implications for length of time and acceptable patterns of study, can be expected to influence the immediate plans of college seniors. The first two columns of Table 6.8 detail the highest degree eventually expected by this cross-section of men and women in the class of 1971.

For both sexes, only about one student in five expected to stop with the baccalaureate degree. Advanced degree plans by 75 to 80 percent of these seniors agrees almost exactly with the proportion of students who indicated eventual postgraduate study plans as summarized in Table 6.5, suggesting that all or almost all the students supplying the earlier information plan to work for advanced degrees in the fields of their choice. These data are also consistent with earlier reports, indicating even more interest in postgraduate study than was true among college seniors five or ten years ago.[5] Whether realistic or not, the feeling that they will need credentials beyond the bachelor's degree continues to be strong.

We know that many of these seniors do not begin work on their advanced degrees immediately, since the proportion who plan to study sometime is much higher than the proportion of those with immediate study plans. Does the timing of study vary according to the degree anticipated? Columns three through eight in Table 6.8 indicate that almost all of those who

---

[5]Davis (1964) reported that 77 percent of the class of 1961 said they expected to study eventually. Sharp (1970) reported that almost 60 percent of the June 1958 college graduates (61 percent of the man and 53 percent of the women) had attended graduate or professional school for at least one term by the summer of 1963. Astin and Panos (1969) reported that overall, 70 percent of his respondents in 1965 said they hoped to take a post-baccalaureate degree.

Table 6.8

Highest Degree Realistically Expected by Sex and Immediate Postcollege Plans
(column percentages)

Degree	All Women	All Men	Women--Immediate Plans: Full-time work[1]	Women--Immediate Plans: Graduate study[2]	Women--Immediate Plans: Professional study[3]	Men--Immediate Plans: Full-time work[1]	Men--Immediate Plans: Graduate study[2]	Men--Immediate Plans: Professional study[3]
(N)	(8333)	(12315)	(6249)	(1499)	(927)	(7856)	(2249)	(3159)
Bachelor's degree	22	18	25	2	5	27	1	2
Master's degree (M.A., M.S., M.B.A., etc.)	63	44	66	65	65	52	37	35
Ph.D.	7	15	4	26	4	8	49	9
Ed.D. or D.A.	2	2	2	4	5	2	4	3
M.D.	1	6	**	1	7	1	4	19
LL.B. or J.D.	2	10	1	1	11	6	2	26
D.D.S., D.V.M., D.D.	**	2	**	1	1	1	2	4
Other and No Answer	3	2	1	2	2	2	1	2

**Less than 0.5 percent.

[1]Full-time work includes military service.

[2]Graduate study plans include study in an arts or humanities field, a biological or physical science field, or a social science field.

[3]Professional study plans include study in business, law, medicine, engineering, education, social work, architecture, and dentistry.

Note: Some seniors indicated more than one "plan" and therefore are included in more than one "plans" column. Omitted from the "plans" tabulations are 16 men and 222 women who indicated marriage as their only immediate plan.

will be satisfied with the bachelor's degree said they plan to work full-time. And most of those who said they expect to earn a doctorate or professional degree indicated plans to study immediately. But three out of five women and two out of five men expect to work only for the master's degree, and they are as numerous among those who plan to work (more numerous, for the men) as among those who plan immediate study.

Comparison with Astin's report on data collected in 1965 suggests that most of the increase in educational aspirations is at the master's level, up from 55 to 63 percent for women and from 38 to 44 percent for men. It seems likely that many of the master's degree candidates will study part-time, and that a large proportion of master's degrees in professional fields will be earned in education by women and in business by men. The most puzzling question is why so many of the women with immediate graduate study plans (two-thirds) said they expect to work only for a master's degree. Undoubtedly some of these plans are related to continued academic preparation for teaching, and others involve quite legitimate terminal programs of various sorts. But it may also be that some of these women indicate aspiration at the master's rather than the doctoral level because of ambivalent feelings about their academic abilities and interests in relation to their future lives as women. The compromise aspiration of a master's degree by some of the very able women in the survey would be consistent with the motive to avoid success that has recently been identified among some of the brightest college women (Horner, 1972). We will consider this possibility again in a later analysis of plans in relation to college grades.

Chapter 2 discusses the self-perceptions of these seniors in relation to their postcollege plans. Analyzing these data by sex also suggests lower self-confidence and lower estimates of academic ability on the part of women, despite their higher college grades. Fewer women agree that they have the ability to complete the advanced work needed to become a doctor, lawyer, or university professor (69 percent of the women vs. 85 percent of the men), or thought that they would be able to get mostly A's in a graduate or professional school (42 percent of the women vs. 49 percent of the men), or thought that they would rank among the best in their classes in graduate or professional school (34 percent of the women vs. 44 percent of the men.) Not surprisingly, fewer women rate themselves in the "top ten percent" in scientific, mathematical, or athletic ability. But fewer women also rate themselves tops in writing ability (19 vs. 22 percent), speaking ability (18 vs. 24 percent), creativity (23 vs. 27 percent), memory (28 vs. 31 percent), leadership ability (20 vs. 35 percent), and sales ability (8 vs. 15 percent). Obviously there are some long-standing issues of motivation and self-concept, in addition to current practices, of career guidance and graduate admissions, that are affecting the future plans and goals of these students.

Slightly more than a third of the men in this survey said that they expect to earn a doctorate or equivalent professional degree, about the same proportion as reported by Astin and Panos (1969) for the class of 1965. The proportion of women who aspire to this highest level may have gone up slightly, from about 9 percent in 1965 to 12 percent in 1971, though differences in samples may account for this difference. In any case, the academic and professional aspirations of men still outreach those of women by about three to one.

Table 6.9 looks at some of these same questions about the relationship between degree aspiration and postcollege plans from a different perspective, by indicating the immediate plans of the people who said they expected to earn each degree. These tabulations make it even clearer that many of the prospective master's degree candidates (more than three quarters of them) are postponing study until sometime later. Teaching doctorates, either the Doctor of Education or the Doctor of Arts, also tend to be postponed. The remaining fields usually require full-time attendance and also attract immediate enrollment by about two-thirds of both men and women aspirants, though women appear somewhat more likely to postpone their start toward medical, dental, or veterinary science degrees.[6]

The last column of Table 6.9 reports the percentage of women among the seniors who indicate each degree as the highest they expect to attain. Women are over-represented (more than 40 percent, their representation in the total number of respondents) among those anticipating the bachelor's or master's degree and among those who failed to answer the question. Men

---

[6]One of the most interesting aspects of these tables, which cannot be explored in any detail in this brief presentation, is the extent to which the plans of these seniors overlap, wander, weave, and generally present a picture of richness and complexity that will surely defy any absolute prediction of their future actions. For instance, some students who say they expect to earn the Ph.D. are beginning advanced study in professional fields, and vice versa. Generally a quarter to a third or more of doctorate and professional degree aspirants plan to work full-time right after college rather than following the more characteristic pattern of immediate study. Even in the most structured fields, obviously there are students who expect to study part-time or to enter from atypical undergraduate programs of study. Though the presented summaries of these data suggest some dominant trends, they also remind us that in almost every case there are a number of exceptions.

Table 6.9

Immediate Plans of Those Who
Expect to Earn Each Degree
(row percentages)

Expected Degree	WOMEN N	WOMEN Immediate Plans[1] Full Work	WOMEN Grad. Study	WOMEN Prof. Study	MEN N	MEN Immediate Plans[1] Full Work	MEN Grad. Study	MEN Prof. Study	Women as % of Total
Bachelor's	1809	88	2	2	2260	95	1	3	45
Master's (M.A., M.S., M.B.A., etc.)	5221	79	19	12	5408	76	16	21	49
Ph.D.	605	40	63	6	1820	35	61	15	25
Ed.D. or D.A.	187	75	30	24	292	66	32	27	39
M.D.	102	25	15	66	767	15	10	79	12
LL.B. or J.D.	169	38	5	62	1274	39	3	65	12
D.D.S., D.V.M., or D.D.	18	44	39	33	218	24	18	61	8
Other and No Answer	222	37	14	10	276	44	11	20	45
Total	8333	76	18	11	12315	68	18	26	40

[1]Row percents may not add to 100 because some respondents plan more than one activity.

and women are represented about equally among those planning education doctorates. Women account for about one out of four seniors expecting a Doctor of Philosophy degree, and about one out of eight of those eventually expecting a medicine or law degree. Though still under-represented, even to achieve these levels of aspiration would increase the current ratio of women to men in these fields.

To summarize the discussion so far, men and women college seniors in the spring of 1971 reported very similar personal backgrounds but characteristically different major fields of study and similarly different anticipated fields of graduate or professional study. There is very little apparent change in study and career plans in comparison with similar survey data collected ten years earlier; women continue to plan careers based on study in the arts and sciences and education, while men emphasize the professions.

Almost all of these women seniors, as well as almost all of the men, planned to work or study in the first year after college graduation (very few of them expected to be full-time homemakers) and four out of five of both sexes expected to earn a graduate or professional degree at some time in the future. But fewer women anticipated immediate study, more women planning immediate study also expected to work full-time (fewer planned full-time study), and fewer women aspired to the doctor's or equivalent professional degree. None of these factors has changed appreciably in the last ten years.

The consistent sex differences in study and career plans over this ten year period, particularly in the lower degree aspirations of women and in their relative absense from most professional fields of study,

Table 6.10

Plans by Sex and Undergraduate Grade Average

(Percents)

	Women--grades[1]			Men--grades[1]		
	C+ or lower	B	B+ or A	C+ or lower	B	B+ or A
(N)	(2698)	(2910)	(2487)	(5523)	(3482)	(3073)
Highest Degree Expected						
Bachelor's	30	21	14	29	12	6
Master's	62	65	61	49	46	33
Academic Doctorate[2]	4	8	17	8	19	31
Professional Doctorate[3]	1	4	6	11	22	28
Other and No Answer	3	2	3	3	2	2
Immediate Postcollege Plans[4]						
Full-time Work (including military)	85	76	64	80	59	41
Graduate Study	11	18	27	11	21	29
Law or Medicine	1	3	5	6	14	24
Other Professional Study	7	8	9	11	16	14
Later Study Plans of Those Not Planning to Study Immediately[5]						
(N)	(2246)	(2153)	(1563)	(4198)	(1872)	(1137)
None	13	9	7	14	9	7
Possibly	46	44	44	49	43	41
Definitely	41	47	50	37	49	52

[1]Question: Approximately what overall average grade have you received so far in college?

[2]Includes Ph.D., Ed.D., and D.Arts.

[3]Includes M.D., LL.B., J.D., D.D.S., D.V.M., and D.D.

[4]Some respondents indicate more than one activity.

[5]Percents are computed on the number of respondents who answered the question: If you are not planning to attend graduate or professional school in the fall, do you have any plans for such study in the future?

contrast sharply with current rhetoric concerning the liberation and equality of women. There is some indication that these senior women anticipated discrimination in some professional fields, in the admissions process as well as in later practice, but the general cultural patterns of appropriate career roles for women probably account for an even larger part of these persisting differences in postcollege plans. We are reminded that patterns of study associated with such ingrained social role expectations change slowly (if at all) for the large majority of college students, even though the enrollments of women in schools of law and medicine increase slightly and other professional schools attempt to recruit some women students.

However, given the growth of the women's liberation movement in the late 1960's, particularly among members of the middle class and on college campuses, at least we might expect to see some greater similarity of career aspirations and plans among unmarried high-achieving men and women college seniors. The next section analyzes reported postcollege plans in relation to undergraduate grade averages, marital status, and age.

The Effects of Grades, Marriage, and Age on Postcollege Plans

Davis (1964), Sharp (1970), and others have demonstrated that the grades a student earns in college are important to his self-appraisal and his study or career plans, in addition to their use as a screening device in the admissions process. The next set of tables considers the educational aspirations and postcollege plans of 1971 seniors in relation to their self-reported overall college grade average and, for the high grade-getters, the additional effect of marriage and age on plans for further education.

We would expect that students with higher grades would receive the most encouragement to continue their studies, and therefore it is not surprising to find in Table 6.9 that higher grades mean higher degree aspirations, more plans to study immediately, and more non-studiers who say they definitely plan to study in the future. The differences are particularly apparent among both men and women who are heading toward an academic or professional doctoral degree, where the degree or study aspirants are represented three or four times as often in the high grade group as in the low grade group.

Again the differences in aspiration and plans are striking between men and women, though in most respects the patterns of influence from grades is similar. But twice as many women with B+ or A undergraduate grade averages expect to stop with the bachelors degree, and less than half as many expect to earn a doctor's degree. An even stronger contrast is suggested by the fact that the percentage of highest-achieving women who expect to earn an academic or professional doctorate is very similar to the percentage of lowest-achieving men who expect to earn the same degrees (23 vs. 19 percent).

Only in immediate plans for graduate study are the proportions of men and women about the same in each grade category, though even here a larger proportion of the women expect to work only toward a master's degree. In fact, almost exactly the same proportion of high and low achieving women, about two-thirds of them, expect to stop at the master's degree. These data are consistent with the earlier hypothesis that some of the most able women may have been experiencing concern about the effect of academic

success on their acceptability in the feminine role and were therefore lowering their aspirations to a level more in line with societal expectations.

Before going on to other variables, it seems worth noting that an amazing number of students with relatively low grades expect to earn graduate degrees, in addition to those with high grades. Most will be master's degrees, but almost one man out of five with college grades C+ or lower expects to earn a doctor's degree, and more than one out of four of the men in this lower grade group expect to begin advanced study immediately after college graduation. These aspirations may be unrealistic, of course, and some of these respondents may be lower grade getters in selective colleges with good preparation for advanced study.[7] But the data certainly support the view that graduate and professional education must deal with a wide variety of academic achievement as well as background, and needs to provide a considerable variety in level as well as type of program. Not all programs, even in study for a doctor's degree, attract students with high undergraduate grade records.

At the other end of the scale, we might consider those students with B+ or A grade averages as members of a pool of talent which should be

---

[7]Both Davis (1964) and Sharp (1970) adjusted college grade averages to reflect the selectivity and character of the institution which awarded the degree. Such adjustments have not been made for the analyses presented in this section, since it is already well documented that graduates of some kinds of colleges are more apt to continue study toward advanced degrees. These tables demonstrate that grades alone, without further refinement, are strongly related to the student's study and career decisions.

Table 6.11

Plans by Sex and Marital Status of Seniors with B+ or A Undergraduate Grade Averages

(Percents)

	Women		Men	
	Single	Engaged or Married	Single	Engaged or Married
(N)	(1462)	(1025)	(2028)	(1043)
Highest Degree Expected				
Bachelor's	10	19	5	8
Master's	59	64	29	41
Academic Doctorate	21	12	33	29
Professional Doctorate	8	3	31	22
Other and No Answer	3	2	2	1
Immediate Postcollege Plans				
Full-time Work (including military)	60	69	35	52
Graduate Study	31	21	29	28
Law or Medicine	7	2	26	18
Other Professional Study	10	8	14	14
Later Study Plans of Those Not Planning to Study Immediately				
(N)	(831)	(732)	(680)	(457)
None	4	9	6	8
Possibly	43	44	43	36
Definitely	53	46	50	56

Note: See footnotes to table 6.10 for explanations.

encouraged and developed for the welfare of society, as well as for their own satisfaction. Of this group, almost three out of five of the men but only slightly more than one out of five women plan eventually to earn a doctor's degree. Two-thirds of the men in this high-achievement group plan further study immediately; only about 40 percent of the women in this group plan to study immediately. Higher degrees and further study may not be the only ways to develop one's talent, but even after this is said, the data suggest undeveloped talents in a sizeable number of women.

These study patterns in relation to grades are very similar to those reported by Davis (1964) and Sharp (1970) for college graduates about ten years ago, although exact comparisons are difficult to make because of differences in study procedures and in organization of the data. For instance, Davis (1964, p. 86) reports that 68 percent of his high-performing men and 36 percent of his high-performing women plan to study in the next year. Comparable figures among 1971 seniors are 67 percent of the men and 41 percent of the women, suggesting perhaps a slight increase among the women. There is also a slight increase in immediate study plans among both men and women in the middle and lower performance groups.

Does marriage account in part for the lower aspirations and lower study rates among high-achieving women? Earlier we noted that more of the men in this cross section of 1971 seniors were married while more of the women were engaged, combining to suggest that about the same proportions would be married within a few months following college graduation. Table 6.11 indicates that marriage has some dampening effect on the study plans of both men and women, but married women are only half as likely as unmarried women to anticipate a doctor's degree while married men are less apt to lower their

Table 6.12

Plans by Sex and Age of Seniors with B+ or A Undergraduate Grade Averages

(Percents)

	Women		Men	
	17-23	24 and over	17-23	24 and over
(N)	(2166)	(314)	(2588)	(483)
Highest Degree Expected				
Bachelor's	14	16	6	10
Master's	60	65	30	47
Academic Doctorate	17	14	32	26
Professional Doctorate	6	2	31	15
Other and No Answer	3	3	2	3
Immediate Postcollege Plans				
Full-time Work (including military)	64	65	38	54
Graduate Study	27	24	29	29
Law or Medicine	5	2	26	11
Other Professional Study	9	11	13	19
Later Study Plans of Those Not Planning to Study Immediately				
(N)	(1350)	(209)	(926)	(211)
None	6	10	6	13
Possibly	44	40	41	39
Definitely	50	50	53	47

Note: See footnotes to Table 6.10 for explanations.

aspirations. Marriage for women is a particular deterrent to immediate study in law or medicine, and to some extent in immediate plans for graduate study. The single high achievers of both sexes appear more likely to study immediately than was true of college graduates 10 years ago (56 percent of the single men and 36 percent of the single women in Davis's study, vs. 69 percent of the men and 48 percent of the women in this group). But the sex difference has not changed appreciably.

Earlier we noted that 222 senior women in this survey indicated plans to become full-time homemakers in the year following college graduation. They have not been included in the tabulations of plans to work or study. But some of them do expect to pursue advanced degrees eventually; while 55 percent of them expect that the bachelor's degree will be their highest, 42 percent expect to earn master's degrees, and a very few aspire to the doctorate.

Another variable to receive attention in recent literature in relation to advanced study plans is the age of the graduate. Actually, more interest has centered upon the older person who returns to undergraduate or graduate programs of study, but the question of age also seems relevant to the plans being made by a graduating senior. Earlier we noted that 12 percent of the women and 22 percent of the men in the study were 24 years of age or older, somewhat beyond the normal age for college graduation. The data in Table 6.12 looks at the postcollege plans of high-achieving seniors in relation to whether they were under or over the age of 24.

As with marriage, in general the older age has some dampening effect on study plans. Both older men and women are less apt to expect doctor's

Table 6.13

Reasons for Not Studying Immediately, by Sex, Undergraduate Grade Average, Marital Status, and Age

Reasons	(N)[1]	WOMEN					MEN				
		Grade Average			B+ or A and engaged or married (732)	B+ or A and 24 or older (209)	Grade Average			B+ or A and engaged or married (457)	B+ or A and 24 or older (211)
		C+ or lower (2246)	B (2153)	B+ or A (1563)			C+ or lower (4198)	B (1872)	B+ or A (1137)		
Simply do not want to		39	37	34	29	20	35	31	27	22	19
Can enter and succeed in my field without further education		20	22	23	26	22	24	20	20	25	28
Cannot afford it		44	44	42	40	37	35	30	30	34	33
Undergraduate grades are not high enough		16	3	**	**	**	23	4	1	1	1
Am tired of being a student		48	52	50	45	30	45	46	44	35	33
Have family responsibilities		18	19	22	43	45	18	15	15	34	36
Low admission test scores (GRE, LSAT, etc.)		2	2	1	1	**	3	4	3	1	1
Discouraged by undergraduate faculty		3	2	2	1	1	4	2	3	2	1
Anxious to enter job market		26	25	25	24	20	23	19	21	27	27
Have not been accepted by any of the graduate or professional schools of my choice		2	3	3	1	1	4	7	5	4	3
Have military obligations		**	**	**	**	**	23	26	29	29	17
Other		18	21	24	24	25	16	18	21	17	20

[1] Base N's are the number of seniors who answered the question on later study plans, reported in the third section of tables ___.

**Less than 0.5 percent.

degrees, particularly in professional areas, and they are both much less apt to plan to enroll immediately in a school of law or medicine. On the other hand, age does not seem to have much effect on immediate plans for graduate study, and older graduates seem even more likely to begin professional study other than law and medicine (primarily education, business, and engineering.) These differences seem realistic in view of the long time span required by most doctor's degree programs and suggest that in other fields, age (at least as defined at this relatively low level) is not a critical variable for the senior planning his or her future.

Do high and low performing students give similar reasons why they do not plan to study in the year following graduation? Earlier we noted that the greatest number of students, both men and women, say they do not plan to study immediately because they are tired of being a student, they cannot afford continued study, or they simply do not want to go. Relatively few, only about 15 percent of each sex, indicated that family responsibilities were a deterrent, and almost no one admitted to discouragement by undergraduate faculty, admission test scores, or admission decisions. Table 6.13 presents these same reasons for not studying immediately by grade average, marital status, and age.

In general, reasons for not studying are amazingly consistent over grade levels, even in the area of financial problems. Tired of being a student still heads the list, followed by finances, and lack of interest. At each level, financial difficulties are indicated by more women than men. Only the handicap of low grades, reported mostly by those with grades C+ or below, changes appreciably from group to group.

The deterrent of family responsibilities is definitely more of a factor for high-achieving students who are married or older, especially among women, and these atypical students express slightly less exhaustion from being a student. Apparently they also lean a bit more toward career fields that do not require further education. But, in general, the pattern of reasons is quite consistent across groups.

Our hypothesis that there would be more similarity in the career and study plans of high-achieving unmarried men and women college seniors is not supported by these analyses. Differences in undergraduate grade averages seem similarly related to the postcollege plans of both men and women, except that master's degree aspirations decreases among highest-achieving men in favor of study toward a doctorate, while about the same proportion of women aspire to the master's degree at each achievement level. Like unmarried men, the plans and aspirations of unmarried women are not very different from the plans of all seniors of the same sex.

Though the following chapter is particularly concerned with the post-college plans of black students, the tables that present contrasting data for white students by sex are also useful as additional information about sex differences in the work values and decision-making processes of college seniors in general, since 88 percent of all women and 93 percent of all men in the study were white. In particular, Table 7.3 demonstrates that men reported slightly more parental encouragement to attend graduate or professional school. Some traditional sex differences in work values are reflected in Table 7.4, but factors important in the decision to continue study immediately after college are very similar for the two sexes (Table 7.8)

as are factors important in the selection of a specific graduate or professional school (Table 7.9). Obviously our research needs to look beyond postcollege plans themselves, and perhaps at younger age-groups, to explain persisting differences in the career aspirations of college men and women.

Chapter 7

A CLOSER LOOK AT THE SURVEY DATA FOR BLACK SENIORS

The percentage of black college graduates continuing on to graduate or professional school is definitely increasing. According to a Ford Foundation report published five years ago (Crossland, 1968), less than 2% of the total enrollment in America's graduate schools were black. More recently, data released by the Office of Civil Rights (Department of Health, Education, and Welfare) indicate substantial increases in the numbers and percentages of Blacks attending graduate and professional schools. According to these figures, in the two years following the Ford Foundation survey the percentage of Blacks in graduate and professional schools climbed to 4.1% overall, with considerable variation between fields (Chronicle of Higher Education, April 12, 1971). Though more recent data are not available, our guess is that the number and percentage of Blacks entering graduate and professional schools has continued to rise and will probably do so as long as advanced education is perceived as a reasonable postgraduate alternative to black graduates.

Given this situation, it seems particularly appropriate to examine more carefully the senior survey data for black seniors, especially those data which would seem to be useful for graduate and professional school deans and others involved in the recruitment, selection, and guidance of students as they seek to learn more about the potential black graduate students, their backgrounds, aspirations, and attitudes.

Over one thousand black seniors participated in the survey. Of these, approximately two-thirds were women and one-third men. Of the 225

Blacks who attended a predominantly white undergraduate institution, however, the sex ratio was nearly half and half (52% female, 48% male), and of the 798 who attended a predominantly black undergraduate institution, 71% were female. Though examination of the differences between black and white seniors was an important aspect of this chapter, the differences between black students attending predominantly white and predominantly black undergraduate institutions are more often the focus.[1]

Student Backgrounds and Undergraduate Colleges

With socioeconomic status defined by parents' formal education and annual family income, it is clear that the black seniors were from lower SES backgrounds than white students in the sample. Furthermore, the black students who attended predominantly white undergraduate institutions came from slightly higher SES backgrounds than those who had attended predominantly black colleges, though these latter differences are small. These data are shown in Table 7.1.

In terms of educational attainment, just over one-third of the fathers of white students (35%) were college graduates, compared to about half that many for the black students. (Educational attainment levels for the students' mothers were very similar to that for the fathers and are not reported here.) In terms of combined annual income, one-fourth of the

---

[1]Predominantly black institutions included in the survey sample were: Central State University, Fisk, Howard, Huston-Tillotson, Langston, Lincoln, Livingston, Morris, North Carolina Central, Tuskegee, Xavier (La.), and Winston-Salem State.

Table 7.1

Fathers' Educational Attainment and Parents' Annual Income

		Black Students Attending:	
Fathers' Educational Attainment:	White Students (N=18,702)	Predominantly White College (N=225)	Predominantly Black College (N=798)
8th grade or less	10	24	30
Part high school	10	20	18
High school graduate	27	23	22
Part college	18	16	11
College graduate	18	6	7
Graduate or professional degree requiring work beyond college graduation	17	12	10
Parents' Combined Yearly Income:			
Less than $3,500	2	10	13
$3,500-$4,999	3	12	13
$5,000-$7,999	9	18	17
$8,000-$11,999	21	16	16
$12,000-$19,999	27	16	13
$20,000-$29,999	13	6	5
$30,000 and over	12	3	2

Note: Figures are percentages and do not always total 100 because of rounding error and omissions.

white students reported family incomes of over $20,000 per year, compared to less than 10% of the black students with family incomes at that level. Conversely, only 14% of the white students reported family incomes below $8,000 per year, whereas over 40% of the black students reported annual family incomes below this level. These data, of course, should come as a surprise to no one, and simply confirm the many other sources of evidence which attest to the inequality of income distribution between the races.

Considering only the data for black students, those who attended a predominantly white college were from slightly higher--but only slightly higher--SES backgrounds. Thirty percent of those who attended a predominantly black college reported their fathers' educational attainment levels to be "8th grade or less," compared to 24% for the black students who attended predominantly white institutions. On the other hand, about 34% of the fathers of black students who attended predominantly white institutions attended college for some time, whereas 28% of the fathers of black students at predominantly black institutions attended college. Similarly, the differences between these two groups on their parents' combined annual income were not dramatic, but nevertheless indicate that those who attended predominantly white colleges come from homes with somewhat higher annual incomes.

Other recent research which suggests that black students who attend predominantly white colleges have dramatically different collegiate experiences (e.g., Centra, 1970; Egerton, 1969; Weidlein, 1972; Willie & Levy, 1972) is supported by the data in Table 7.2. In comparison to their white classmates and Blacks at predominantly black colleges, black students who attended predominantly white colleges viewed their

Table 7.2

Student Descriptions of Their Undergraduate Institutions

Descriptive Statements	White Students (N=18,702)	Black Students Attending: Predominantly White College (N=225)	Black Students Attending: Predominantly Black College (N=798)
There is poor communication between administration and students.	20	23	21
Students are friendly.	37	29	45
College is intellectually stimulating.	24	29	21
College is proper and conventional.	27	23	19
There is an active social and dating life.	22	10	35
College emphasizes religious and ethical values.	13	16	19
Has a friendly, approachable faculty.	35	30	19
Rules are strictly enforced.	12	12	12
There is keen competition for grades.	33	40	44
Students are treated like numbers.	17	16	9
There is much school spirit.	11	10	11
Has a liberal environment.	22	20	20
Has an informal environment.	32	32	25
The teaching is excellent.	18	21	12
Students are very bright.	24	26	9
There are lots of student cliques.	25	40	37
College is cold and impersonal.	7	8	3
College helps students become mature.	24	17	25
Students are independent.	27	24	21
Students often change majors.	28	30	29
Many students have jobs.	23	27	37
Is in a closely knit community.	14	17	19
Students are involved in governance.	11	13	12
College is committed to social change.	10	13	15
Professors are often absent from class.	1	0	3
There is a lot of radical activity.	6	7	4
Professors are more concerned with research than teaching.	8	7	3
There is a lot of drinking.	29	25	20
Drugs are easily available.	29	24	19
Academic cheating is fairly common.	10	11	16
Most students think that traditional politics are ineffective in leading to social change.	14	18	24

Note: Figures indicate percentage of students indicating the statement was "very descriptive" of their present college. Options were "not descriptive," "somewhat descriptive," and "very descriptive."

fellow students as being considerably less friendly, had a much less active dating and social life, saw the college as being cold and impersonal, and were more likely to claim that there are "lots of student cliques." Interestingly, students who attended predominantly black colleges less often reported that their college had friendly, approachable faculty members, and more often cited keen competition for grades.

The final background variable considered in this section of the report is parents' attitudes about attending graduate and professional school and is presented in Table 7.3. These data indicate that parental discouragement to attend graduate school was rare indeed, for both black and white students; that white females receivedthe least encouragement to attend graduate or professional school (from either their mothers or fathers); and that black females received the greatest encouragement of all the groups, but tended to receive more encouragement from their mothers than their fathers. Interracial differences for males were not as pronounced as for females, though black males did tend to receive more encouragement from their mothers than white males.

Thus, with respect to student backgrounds, the general picture which emerges is one in which the black students: (1) came from lower SES homes than the white students (and black students who attended predominantly black colleges from lower SES homes than Blacks attending predominantly white institutions); (2) experienced considerably different educational and social climates in undergraduate school; (3) but tended to receive somewhat more encouragement than white students to continue their studies beyond the bachelor's degree, with a good deal of encouragement given to black females.

Table 7.3

Parents' Attitudes About Attending Graduate or Professional School

	White Students		Black Students	
	M (N=11,391)	F (N=7,311)	M (N=340)	F (N=683)
Father				
Discouraged me from attending.	1	2	1	1
Neither encouraged nor discouraged me.	40	45	34	30
Encouraged me to attend.	26	23	23	25
Strongly encouraged me to attend.	20	15	22	26
Mother				
Discouraged me from attending.	1	2	0	1
Neither encouraged nor discouraged me.	41	45	30	23
Encouraged me to attend.	29	26	31	34
Strongly encouraged me to attend.	20	16	29	33

Note: Figures are percentages and do not always add to 100 because of those omitting the item.

Factors Influencing Choice of Vocational Field

Obviously, many factors influence one's choice of a vocational field and these factors, in turn, have a bearing on one's plans for attending or not attending graduate or professional school. A summary of the importance assigned to various vocational choice factors for students by race and sex is presented in Table 7.4. The data in this table make it clear that there were numerous differences--between races, between sexes, and for black students, between those attending predominantly white or predominantly black colleges--in the importance assigned to the factors listed. In general, factors having to do with money, security, and status were less often regarded as being very important to white students (partially owing, no doubt, to the fact that they came from financially more secure backgrounds to begin with--again, see Table 7.1) and, among black students, more frequently regarded as very important by those who attended predominantly black colleges. As expected, altruistic factors (e.g., "being of service to others," "interest in working with people") were consistently regarded as being more important to women than men of all groups. Only one factor was considered very important by more than half the men and women white students in the sample, namely, "interest in the work activities." For black students, on the other hand, there was a general tendency to rate more of the factors as being very important.

In an attempt to indicate some interesting findings with respect to patterns of interest, a selected number of factors from Table 7.4 are arranged by apparent content consistency (that is, those factors that seemed to "go together" are grouped together) and presented again in

Table 7.4

Importance of Various Factors in Choice of Vocational Field

	White Students		Black Students Attending: Predominantly White College		Black Students Attending: Predominantly Black College	
	M (N=11,391)	F (N=7,311)	M (N=107)	F (N=118)	M (N=233)	F (N=565)
High income	10	3	16	8	27	19
Independence (extent to which you can work on your own)	46	33	50	56	52	46
Being of service to others	40	58	59	66	49	58
Security	23	19	33	32	55	48
Opportunity for leadership	27	14	33	15	39	22
Interest in the work activities	53	53	46	47	47	42
Lack of interest in other fields	5	5	5	8	7	5
Allows more free time than other fields	7	7	7	8	6	5
Makes use of my special talents and abilities	41	47	51	52	48	41
Interest in working with people rather than with things	40	65	64	72	54	52
Requires shorter education than other fields	1	1	3	1	3	2
Interest in travel	10	12	17	14	19	22
Status, prestige	7	3	10	8	20	10
Opportunity to get ahead rapidly	12	2	15	11	30	15
Desire to make a contribution to knowledge	19	22	27	37	41	38

Note: Figures refer to percent indicating the particular factor was "very important" in their choice of a vocational field. Options were "not important," "important," or "very important." Note that this organization of the data differs from that used in Table 2.6.

graph form in Figure 7.1 for the four groups of black students.[2] Here it can be seen that not only were there consistent patterns across the groups within item groupings (for example, males who attended predominantly black colleges consistently attached more importance to factors related to income, security, and the like), but also these patterns between item clusters of factors take on more meaning. Note, for example, that black women who attended predominantly white colleges attached least importance to the factors of income, security, etc., and at the same time assigned greatest importance to the altruistic factors ("being of service to others," and "interest in working with people"), and the factors which seem to relate to "individualism" (including "independence," "interest in work activities," and "allows more free time").

Educational Aspirations

Data from various sources clearly indicate that attending graduate school, at one time an educational pattern pursued by only a small percentage of the nation's college graduates, has become more and more common. In the senior survey data reported here, the overwhelming majority of seniors--of both races and sexes--indicated that they planned to earn a graduate degree. These data are summarized in Table 7.5.

In studying the data in Table 7.5 it is apparent that there are sex and race differences with respect to educational expectations. For white students, 36% of the men indicated intentions of earning an advanced

---

[2]The word "factor" is not used here in the standard psychometric sense of a cluster of empirically intercorrelated variables, but rather in the sense of a single variable or "reason" that might be considered by students.

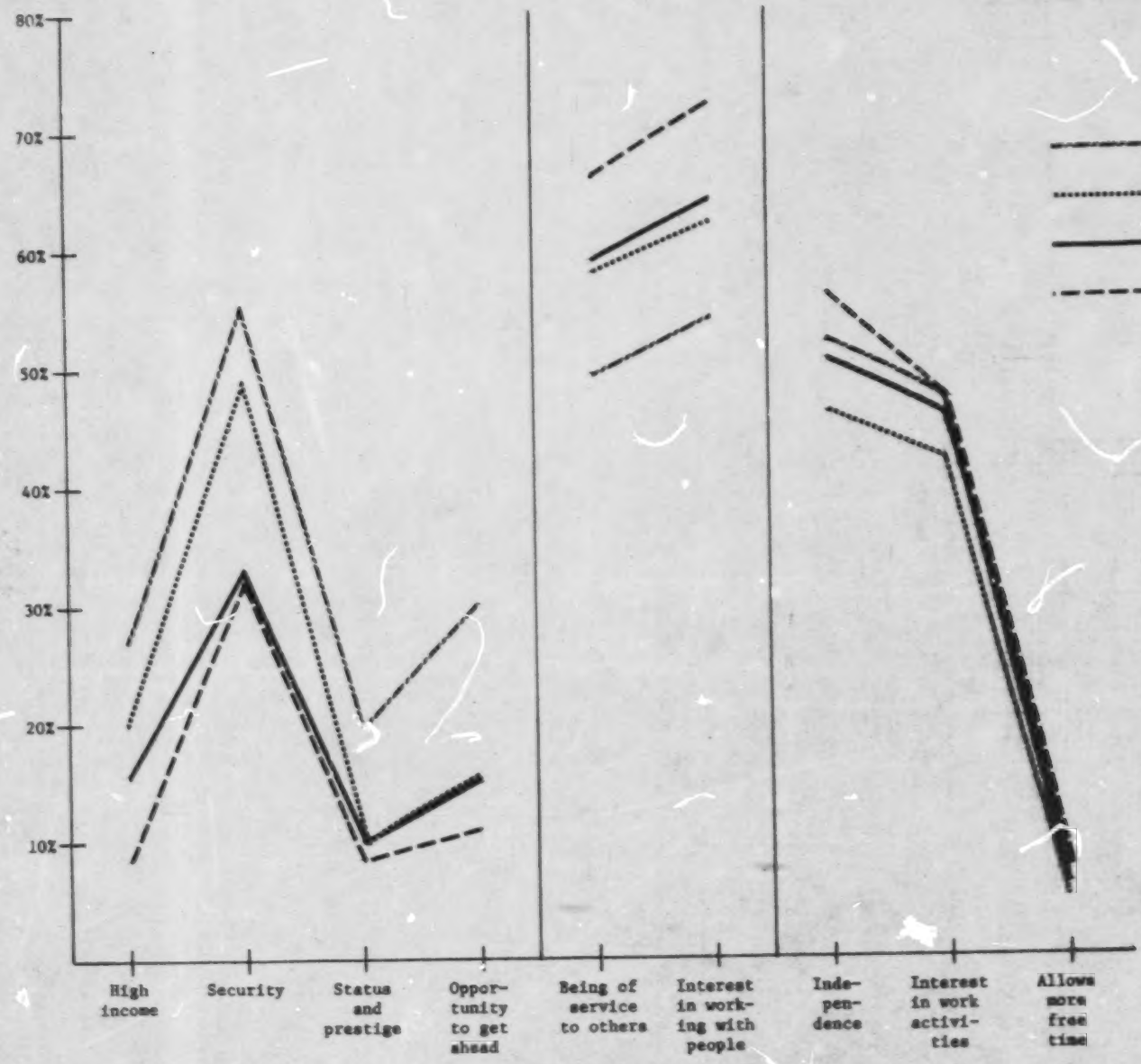


Fig. 7.1. Percentage of Black Students Indicating "Very Important" in Choice of Vocational Field

Table 7.5

Highest Degree Expected to Attain

Degree	White Students		Black Students Attending: Predominantly White College		Black Students Attending: Predominantly Black College	
	M	F	M	F	M	F
	(N=11,391)	(N=7,311)	(N=107)	(N=118)	(N=233)	(N=565)
Bachelor's	19	23	6	5	7	10
Master's	44	62	35	61	53	70
M.D.	6	1	11	2	5	1
L.L.B. or J.D.	10	2	17	6	10	1
Ph.D.	14	7	18	5	11	6
Ed.D.	2	1	3	9	7	5
All Other (DVM, DDS, etc.)	4	3	9	2	7	8

Note: All figures are rounded percentages.

degree beyond the master's compared to 14% of the women expressing similar intentions. For black students, 58% of the men who attended predominantly white colleges indicated plans to attain an advanced degree beyond the master's, compared to 24% of the women, and for those who attended a predominantly black college, the figures were 40% for men and 21% for women. Thus, more than twice as many men as women--for both races--planned to attain an advanced degree beyond the master's degree. Also, black students of both sexes had considerably higher educational aspirations than the white students, with the educational aspirations of white females being the lowest of all groups included.

The data in Table 7.5, it should be pointed out, were obtained without a time referent since respondents were simply asked, "What was the highest degree they expected to attain?" Thus, these may be somewhat inflated figures of what the actual graduate school enrollments turn out to be. Student plans for the fall immediately following obtaining the bachelor's degree are presented in Table 7.6, and data which include long-range plans for attending graduate or professional school are included in Figure 7.2. These data indicate again the higher educational aspirations of black students, particularly those who attended predominantly white undergraduate colleges. Note in Figure 7.2 that less than 20% of both the men and women black students who attended a predominantly white institution had no definite intentions of attending graduate or professional school, compared to 26% and 32% for male and female black students who attended predominantly black colleges and 35% and 42% of the white men and women.

Table 7.6

Plans for Autumn after Graduation

	White Students		Black Students Attending: Predominantly White College		Black Students Attending: Predominantly Black College	
	M (N=11,391)	F (N=7,311)	M (N=107)	F (N=118)	M (N=233)	F (N=565)
Working full time	52	76	46	64	66	78
Military	15	1	11	8	12	1
Marriage	9	21	7	14	6	14
Grad. School/Arts-Hum.	5	8	5	8	9	9
Grad. School/Science	8	4	6	4	6	3
Grad. School/Soc.Sci.	5	6	12	10	6	9
Grad. School/Educ.	2	6	5	10	6	6
Business School	5	1	7	2	6	2
Law School	7	1	10	6	7	1
Medical School	6	2	9	2	4	1
Other study combined (Dentistry, Engr., Arch., etc.)	5	1	6	2	2	3

Note: Figures are percentages and include multiple responses. Students were instructed to indicate what they planned to be doing ". . . this fall. If you expect to be doing two things simultaneously, mark both."

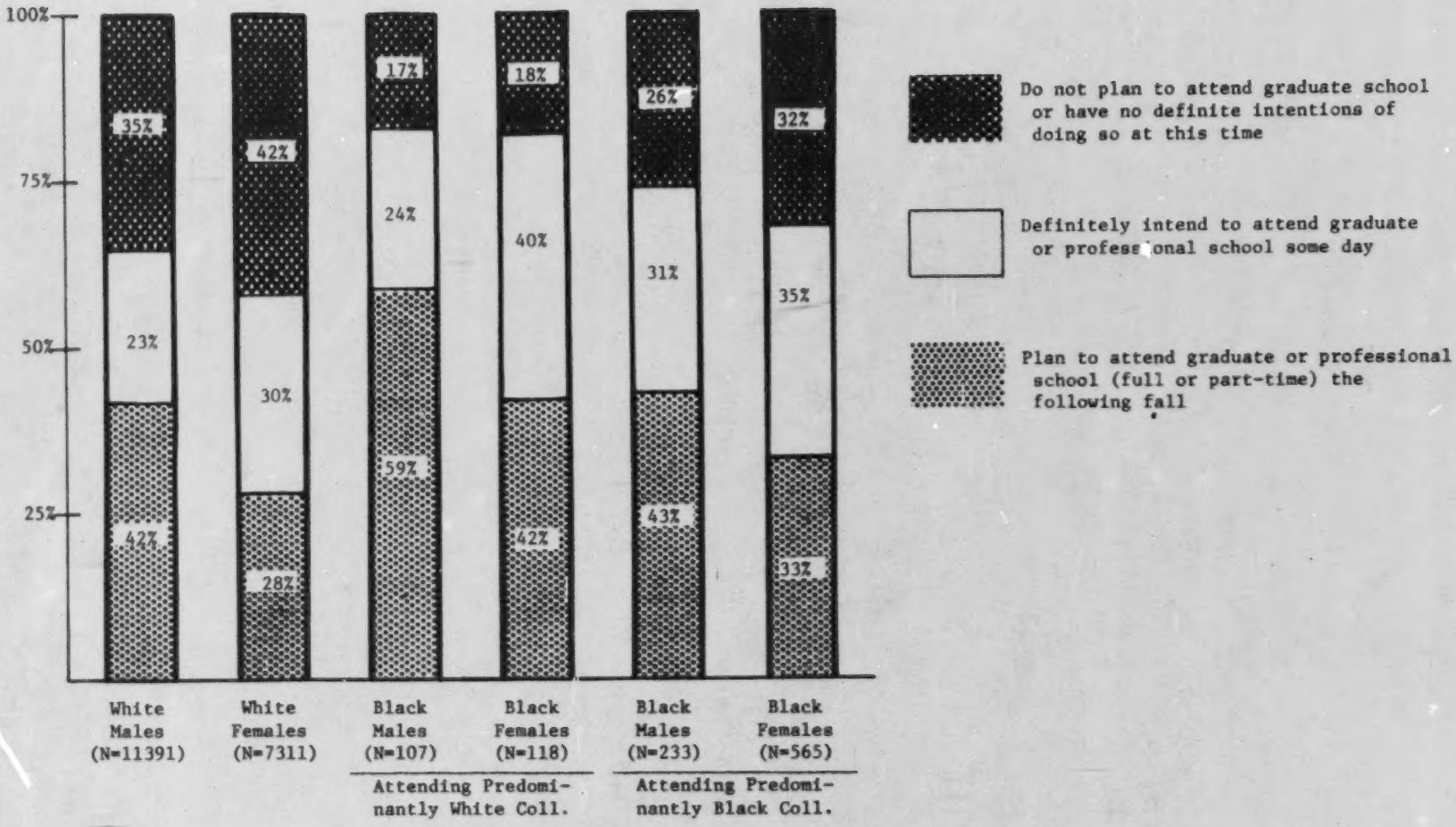


Fig. 7.2. Postgraduate Educational Plans

To some extent, these findings are mildly surprising. It is true that a great deal of research on the comparative educational and occupational aspirations of Blacks and Whites has indicated that Blacks very often have higher educational aspirations. An important difference between the data reported in this study and many of the other investigations, however, is that these data refer to educational plans and expectations, not aspirations, and this appears to be an extremely important distinction, conceptually and functionally.[3] In much of the other research literature dealing with this topic (almost all of which is based on samples of black and white students of much younger ages than those in our study), the evidence seems to be that black youths have higher educational aspirations, but somewhat lower expectations than white youths. The authors of a recent comprehensive review of research in this area comment that "Earlier research had suggested that the expressed educational and occupational aspirations of Negroes were higher than those of Whites. Recent work indicates that the aspirations of Negroes are high, but expectations are less, and with increasing age, reality factors become more significant" (Dreger and Miller, 1968).

Thus, in view of the fact that the data reported here deal with student expectations and plans, one might have expected the percentages of black seniors indicating definite intentions for postgraduate education

---

[3]The three specific questions which were used in obtaining the data in Tables 7.5 and 7.6 and Figure 7.2 were: "What is the highest degree you realistically expect to attain?" (Table 7.5), ". . .describe what you expect to be doing this fall," (Table 7.6), and ". . .do you have any plans for such study (graduate or professional school study) in the future?" (for Figure 7.2).

to be somewhat lower than those for white students, not higher. Several explanations for this reversal are plausible. First, of course, our data were obtained from college seniors and most of the other data were based on samples of much younger students. There undoubtedly has been a good amount of self-selection already operating here, and only the more able black students have succeeded in earning a bachelor's degree. For these students, then, the gap between aspiration and reality may not be as wide as one would expect for younger students, regardless of race. Second, there no doubt are more realistic educational opportunities available to black youths today than was the case five or ten years ago. Whereas going to college or graduate school might have been regarded as a pipe dream for many able black youths in the early '60's, increased accessibility and more financial assistance make such aspirations more easily attainable today. Finally, it is possible that the high expectations reported here are to some extent influenced by questionnaire response bias.

In any event, whatever the reasons, the black college seniors in our sample planned and expected to continue their education beyond graduate school in substantial numbers.

Reasons for Not Attending Graduate or Professional School

As indicated in Figure 7.2, most of the seniors in the survey did not intend to enter graduate or professional school in the fall after completing college. Except for black men who attended predominantly white colleges (59% of whom planned to attend graduate or professional school in the fall), all the other groups had less than 50% announcing plans for postgraduate educational experiences immediately. Reasons for not attending graduate or professional school immediately for the others (representing about

two-thirds of the white students and just over 60% of the black students) are summarized in Table 7.7. (In analyzing these data, the reader is cautioned to remember that many of these students do intend to go to graduate or professional school some day. Again refer to Figure 7.2.)

For white students of both sexes, the most important reason (i.e., the reason cited as being important by the largest percentage of students) was that they were simply tired of being students. For black students of both sexes, on the other hand, the primary reason offered was that they could not afford it, though this factor was perceived as being more important to women than men, for Whites and Blacks.

Females of all groups were more inclined to indicate that they simply did not want to attend graduate or professional school and that they were tired of being students.

Of particular interest is the fact that what we might call academic factors--undergraduate grade point averages and low admission test scores--were seldom perceived by the students as being important reasons for their decision not to attend graduate or professional school in the fall. And related to this, discouragement by undergraduate faculty and/or not being accepted by any of the schools of their choice were perceived as important only by a very small percentage of all the students. There may have been some rationalizing going on here, since certain students may well have been unwilling to admit--either to themselves or others--that poor academic records or low test scores played more than a minor role in their decision. Nevertheless, the small percentage of students who perceived academic reasons as playing an important role in their decision not to attend graduate or professional school is still quite dramatic, and could

Table 7.7

Reasons for Not Planning to Attend Graduate or Professional School the Following Fall

Reasons	White Students		Black Students Attending: Predominantly White College		Black Students Attending: Predominantly Black College	
	M (N=6751)	F (N=5285)	M (N=44)	F (N=68)	M (N=133)	F (N=380)
Simply do not want to	33	38	14	22	9	20
Can enter and succeed in my field without further education	22	23	7	13	5	3
Cannot afford it	31	40	25	43	32	43
Undergraduate grades are not high enough	13	7	11	6	4	4
Am tired of being a student	44	50	23	31	8	20
Have family responsibilities	15	19	14	21	19	15
Low admission test scores (GRE, LSAT, etc.)	2	1	5	6	1	2
Discouraged by undergraduate faculty	3	2	0	6	0	0
Anxious to enter job market	21	25	14	13	11	17
Have not been accepted by any of the graduate or professional schools of my choice	3	1	7	4	2	2
Have military obligations	24	0	23	1	21	0
Other	15	19	14	19	14	16

Note: Each figure is the percent of those not attending graduate or professional school in the fall who indicated the reason was important.

have important implications for those running the graduate and professional schools. For black students, particularly, awareness of the fact that so many black seniors indicated that they chose not to continue their education because they simply could not afford to is a basic factor to keep in mind as graduate and professional schools attempt to increase enrollments from minority groups.[4]

Factors Influential in Decision to Continue Education

We turn our attention now to those students represented by the bottom third of the six bar graphs presented in Figure 7.2, that is, those studen s who indicated plans to attend graduate or professional school on a full or part-time basis during the fall immediately following their graduation. The remainder of this chapter will deal only with data gathered from these students.

Having already considered the question of why certain students did not plan to continue on to graduate or professional school, we were of course interested in the corollary question of why other students did plan to continue. Included in Table 7.8 are various factors that students might regard as influencers of postgraduate plans with an indication of the percentage of students of each group who regarded each factor as being very important in their decision to attend graduate or professional school.

---

[4] Caution must be observed in interpreting the subgroup data in this case, however, owing to reservations about the representativeness of our sample. Note that the sample sizes are quite small for black students who attended a predominantly white undergraduate institution.

Table 7.8

Importance of Various Factors in Decision to Attend Graduate or Professional School

	White Students		Black Students Attending: Predominantly White College		Black Students Attending: Predominantly Black College	
	M (N=4820)	F (N=2026)	M (N=63)	F (N=50)	M (N=100)	F (N=185)
Desired vocational field requires an advanced degree	47	44	38	58	28	32
Improve chances of receiving a good salary promotions, etc.	20	15	11	26	36	30
Parents' encouragement	8	10	13	20	16	22
Greater prestige	7	4	8	6	12	6
Encouragement of college faculty	10	15	6	18	15	11
Postpone military obligation	7	0	0	0	4	0
Unable to find satisfactory employment	3	7	2	10	11	9
Interest in learning more about my field	42	47	36	36	42	42
Received a fellowship or scholarship	8	11	14	22	14	15

Note: Figures refer to percent indicating the factor was "very important." Options were "not important," "important,"and "very important."

Overall, the two reasons cited most frequently as important influencers of the choice to attend graduate or professional school were the fact that an advanced degree is required for entry into the vocation chosen by the student, and an interest in learning more about one's chosen field of study. Though important to all students planning graduate or professional school in the fall, those two reasons were relatively more important to white students than black.

Of somewhat lesser importance, but a factor frequently cited, was the notion of improving one's chances of receiving a good salary, promotions, etc. About one-third of those attending predominantly black colleges regarded this as an important factor in their decision to continue their education (36% of the men and 30% of the women), a finding not surprising in view of the SES data discussed earlier in this chapter. For the same reason, it is not surprising to learn that black students more often cited receiving a fellowship or scholarship as important.

Parents' encouragement was more often regarded as being important by black students than white, and for both races, more important to females than males. Finally, the encouragement of college faculty, while not a factor as important as several of those already discussed, nevertheless received substantial mention as a factor playing an important role in the student's decision to attend graduate or professional school, particularly for black and white women attending predominantly white colleges.[5]

---

[5]As was the case with the data for students not planning to attend graduate or professional school, the reader is cautioned here about the generalizability of the data for black students attending predominantly white colleges, in view of the small number of black students for whom data were available.

Of equal importance to the question of what factors influence one's decision to attend graduate or professional school is the question, "What factors are important in one's decision to attend a specific institution for graduate or professional training?" Data bearing on the answer to this question are presented in Table 7.9.

The reason given as being very important by the highest percentage of students of both races and sexes was the high calibre of the program offered in the student's field. For white students, in fact, that reason was cited as very important more than twice as often as any other reason. For black students, on the other hand, the high calibre of the graduate program, though cited most frequently, was challenged by other factors in terms of their importance in the student's choice of a specific program. These other factors included offers of financial assistance (so again we see the importance of financial factors for black students), perceived liberal racial attitudes, urban location, and the perception that one's chances of being admitted were excellent.

Experiences in Applying to Graduate or Professional Schools

Black students who attended predominantly white undergraduate institutions applied to more graduate and/or professional schools, were accepted for admission at more institutions, and were offered financial aid at more institutions than white students or black students who attended predominantly black colleges. These data, which are self-reported experiences, are presented in Table 7.10.

Table 7.9

Influence of Various Factors on Choice of Specific Graduate or Professional School

	White Students		Black Students Attending: Predominantly White College		Black Students Attending: Predominantly Black College	
	M (N=4820)	F (N=2026)	M (N=63)	F (N=50)	M (N=100)	F (N=185)
The high caliber of the program offered in my field	35	33	25	56	23	28
The chance to work under a particular faculty member	6	7	5	4	3	3
Large department or professional school	6	7	5	12	7	5
Small department or professional school	4	5	5	8	1	1
Advice of a teacher at another school	4	4	2	4	3	3
I had attended the university as an undergraduate	8	9	5	6	3	4
Desirable location - urban	9	13	14	24	14	11
Desirable location - suburban or rural	5	5	2	0	1	3
Offer of financial assistance	15	15	14	32	22	26
As a resident of the state, I do not have to pay out-of-state tuition fees	8	8	6	8	9	7
Close to my home	7	11	3	10	12	9
Excellent chances of being admitted	12	12	13	18	15	12
Friendly social climate	8	9	11	10	13	9
Liberal racial attitudes	3	4	18	14	12	12
School has reputation for being active in social causes	3	3	9	12	8	8
Church-related institution	3	2	3	0	1	2
Reputation as a "teaching" school	6	5	3	12	9	10
Reputation in research and research facilities	10	9	8	22	12	12
Prestige of institution	15	10	16	24	11	10
Can earn a degree in a shorter time	3	3	5	2	5	5
Unstructured grading system	1	1	5	6	2	2

Note: Figures refer to percent indicating the factor was "very important." Options were "not important," "important," and "very important."

Table 7.10

Applications, Acceptances, and Financial Aid Offers for Students Planning to Attend Graduate or Professional School the Following Fall

	White Students		Black Students Attending: Predominantly White College		Black Students Attending: Predominantly Black College	
	M (N=4820)	F (N=2026)	M (N=63)	F (N=50)	M (N=100)	F (N=185)
Applied to:						
None	2	3	0	4	1	4
One or two	39	45	30	40	41	42
Three or more	46	30	52	46	32	24
Accepted at:						
None	11	10	5	8	18	9
One or two	52	46	44	46	40	35
Three or more	19	15	24	30	6	11
Offering Aid:						
None	43	37	22	26	25	17
One or two	28	26	33	44	28	26
Three or more	7	4	19	14	7	6

Note: Percentages do not add to 100 because some respondents omitted this item.

Of the 4,820 white males and 2,026 white females who had plans to attend graduate or professional school in the fall of 1971, 2% and 3% respectively had not submitted an application for admission to any institutions at the time these data were collected (between late April and mid-June, 1971). White males applied to considerably more institutions than white females (nearly half the men applied to three or more institutions), but acceptances and financial aid offers were quite similar.

Black students of both sexes who attended predominantly white institutions applied to more institutions than those who had attended predominantly black colleges, but also had significantly higher acceptance rates and financial aid offers.

A summary of other experiences encountered by students in the process of applying to graduate and professional schools is presented in Table 7.11, where the data refer to the percentage of students indicating that each incident happened at some or most of the institutions to which they had applied.

First of all, it is worth noting that the two positively worded statements--"I got a quick response to my initial request for information," and "I felt I was treated as an individual "--were experienced at some or most institutions far more often than any of the other five negatively-stated experiences. In general, in other words, students of both races and sexes had many more positive experiences than negative ones in the process of applying to graduate and professional schools. In fact, claims that negative incidents occurred to them at most of the schools were made by more than 10% of the students in only three cases--two of those having

Table 7.11

Experiences in Applying to Graduate or Professional Schools

	White Students		Black Students Attending: Predominantly White College		Black Students Attending: Predominantly Black College	
	Some	Most	Some	Most	Some	Most
	(N=6846)		(N=113)		(N=285)	
I had trouble getting as much information about the school as I needed	23	5	20	4	14	3
I got a quick response to my initial request for information	27	42	22	43	23	32
I felt I was treated as an individual	37	25	40	30	24	28
I had trouble finding out what the specific requirements for admission were	17	7	14	4	12	5
The application deadlines were too early	18	8	22	4	18	10
The factors the school considered important for admission were never made clear	23	12	16	11	14	7
The school may have discriminated against me	9	2	16	0	15	3

Note: Figures are percent indicating the particular experience occurred at "some" or "most" of the schools the student applied to. Options included "This happened at none of the schools I applied to," "some of the schools I applied to," and "most of the schools I applied to."

to do with the fact that some of the schools did not make clear to the candidate which factors were considered to be important.

In general, it appears that these experiences were pretty much the same for white and black students, and for black students pretty much the same regardless of whether they attended a predominantly black or predominantly white institution.

Chapter 8

THE CORRELATES OF GRADES AND TEST SCORES

Both grades and tests have come under fire in recent years (Warren, 1971). They have been criticized as being inaccurate, biased, and irrelevant. Some students, particularly from minorities, regard them as antiquated fixtures of an elitist system. Grades are castigated as artificial barriers to students' legitimate claims for further education or jobs. Some colleges have tried to respond to these attacks by altering or even abandoning their testing programs or grading systems. Testing organizations have undertaken a spate of research to show that tests are not biased in a technical sense. Others have met the criticism head-on and argued for "the positive function of grades" (Feldmesser, 1972) or the validity of tests (Stanley, 1972). Whatever the criticisms and defenses, two points should be reemphasized: (1) grades have been and are merely the technical apparatus for academic evaluation of student performance, and (2) admission tests are simply tests that are especially efficient in predicting grades. Because of these basic purposes of grades and tests, many criticisms of them are really criticisms of traditional academic procedures and values. What Jacques Barzun has called "the house of intellect" is under attack.

The issues in this discussion are thus simultaneously philosophical, technical, and emotional. There will probably be many years of discussion,

research, politics, and polemics before any convincing solution or solutions are reached. One should, therefore, not be optimistic that any one study will add greatly to the solution of the problem. The present study provides one kind of evidence about what grades and test scores represent. From the wide range of information included in the Senior Survey, we should be able to provide evidence about the extent to which grades and test scores are related to students' social class, ethnic group membership, self-concepts, plans, and other characteristics. To do this, seniors' grades and test scores were correlated with many other characteristics. The results showing the correlates of grades, Graduate Record Examinations, Law School Admission Test, and the Medical College Admissions Test Science scores are reported in Tables 8.1 through 8.7.

Correlates of Grades. It is easy to see why controversy surrounds grades. Grades are a crucial point in the interaction between professors and students. A grade represents an assessment of the student and, at the same time, a reward for certain behaviors. Grades have great importance for students and professors alike, and not just because good grades are important for admission to a post-graduate institution or because they may impress an employer. To many students, grades represent evaluations not only of their ability but of their worth as persons. For these reasons, the actual correlations of various factors with grades are important.

The evidence concerning the basis for awarding grades, student reactions to grades, and the effects of grades on students' self-concepts is complex and voluminous (Warren, 1971). The basis for grades is certainly multidimensional (Axelrod, 1964; Gamson, 1967; Trow, 1968). And, of course, the basis for grades will vary by subject and by instructor. But a description of the general correlates of grades can suggest what grades really represent. And a consideration of the correlates can lead to a better understanding of the goals and values that grades serve.

The correlates of student-reported college grades are shown in Table 8.1. Student-reported grades were used in this study because they could be obtained much more easily and inexpensively than college reported grades. The research evidence indicates that they correlate highly with college-reported grades, and predict later grades as well as college-reported grades. Some reviews of the evidence can be found in Baird (1971) and Maxey and Ormsby (1971). To examine the possible differences between overall academic performance and performance within field, students were asked for their grades in: a) all colleges courses, and b) courses in their major field. The correlation between the two was .68. Major field grades were higher on the average--18 percent C's, 61 percent B's, and 19 percent A's--than overall grades--40 percent C's, 51 percent B's and 7 percent A's.

As Table 8.1 shows, the correlates of overall and major field grades were very similar, although the correlations of major field grades with other variables were consistently lower. The most striking theme that can be seen in this table was the degree to which self-perceptions and self-ratings correlated with grades. Students who got good grades had considerable confidence in their ability to handle academic challenges and credited themselves with a good deal of ability in academically relevant areas. Accordingly, they tended to plan higher degrees and apply to more institutions. Of course, students who get high grades also tended to score high when they took tests for graduate or professional school admission. They also tended to have received some form of academic recognition, such as a prize in their field, an assistantship, or encouragement from the faculty.

Students with good grades tended to come from families who have encouraged their academic ambitions, probably leading them to consider graduate or professional work at relatively early ages. Interestingly, students with good grades

Table 8.1

The Correlates of Self-Reported College Grades -- In Rank Order

Variable	Correlation With All Grades	Correlation With Grades in Field
Self-rating on scholarship	.64	.53
"I would rank among the best in academic ability in my class in college"	.50	.42
Academic self-conception scale	.44	.37
MCAT science score	.38	.33
"I think I would be able to get mostly A's in a graduate or professional school"	.35	.35
"I would rank among the best in my class in graduate or professional school"	.33	.32
Highest degree sought	.31	.27
LSAT score	.30	.22
Won prize for work in field	.29	.29
GRE-V Score	.29	.23
"I have the ability to complete the advanced work needed to become a doctor, lawyer, or university professor"	.28	.24
Self-rating on writing ability	.25	.19
GRE-Q Score	.25	.15
Self-rating on memory	.24	.22
Self-rating on scientific ability	.22	.13
"Regardless of how others may grade my work, I think my academic work is good"	.21	.20
Self-rating on mathematical ability	.21	.10
Self-rating on reading ability	.20	.18
Number of institutions applied to	.19	.15
Age when first thought of grad. or prof. school	-.19	-.09
High income important to vocational choice	-.13	-.13
Mother encouraged attendance at grad. or prof. school	.13	.12
Friends encouraged attendance at grad. or prof. school	.12	.13
Father encouraged attendance at grad. or prof. school	.12	.11
Held assistantship in scientific field	.12	.10
Sex: Female	.11	.12
Self-rating: Speaking ability	.11	.12
Chances for higher salary important in graduate plans	-.11	-.10
Faculty encouragement important in graduate plans	.10	.20

tended to reject income as an influence on their vocational and academic decisions. Finally, women tended to get better grades than men.

In short, students who obtained high grades were academically able students with positive self-concepts who had been encouraged in their efforts for academic success.

To round out this picture, we need to consider the factors that were not correlated with grades. These included race, religion, parental income, parental education, and marital status. Thus, grades did not seem to be "biased" in any of the ways that term is usually used. Instead, grades seemed to reflect the concerns of traditional academic practices. The comparable correlates of grades and test scores are reported in Table 8.6.

Correlates of Test Performance. A great deal of controversy and some research has been concerned with what test performance means. It is beyond the scope of this report to review this controversy and research. However, it is possible to outline some results that are relevant to this controversy--describing the personal characteristics that correlate with test performance. That is, by suggesting the kinds of students who tended to score high on the tests, we should have a better idea of what the tests represent. The test scores used in these analyses were the self-reported scores students provided on the senior survey. Not only were these scores economical to obtain, but research indicates they are also generally accurate.

GRE-V. The correlates of verbal scores on the Graduate Record Examinations with other variables are shown in Table 8.2. Higher scoring students tended to think of themselves as able in writing, reading, and scholarship. They had general confidence in their academic ability, and, in fact, obtained high grades although they tended to downgrade the importance of grades. They tended to have thought of advanced study at a relatively early age and have high degree aspirations. They applied to, were accepted by, and were offered aid by more institutions. They tended to place little importance on considerations of money, security, leading others

Table 8.2

Correlates of Scores on GRE-Verbal (Self-Reported)

Variable	Correlation
Self-rating: Writing ability	.35
Self-rating: Reading ability	.35
Self-rating: Scholarship	.29
Undergraduate GPA - all courses	.29
Age when first thought of advanced study	-.27
Undergraduate GPA - courses in field	.23
Security important in vocational choice	-.23
Level of degree aspiration	.23
Would rank among best in college	.22
Number of institutions accepting	.2[illegible]
Father's education	.21
Have the ability to complete graduate or professional school	.21
Improving chances for good salary important in going on	-.21
Number of institutions offering aid	.20
Mother's education	.19
Parental income	.19
High income important in vocational choice	-.19
Getting good grades is the most important thing in college	-.17
Regularly read books unrelated to classwork	.17
Took part in a demonstration	.17
Being of service to others important in vocational choice	-.17
Opportunities for leadership important in vocational choice	-.17
Number of institutions applied to	.17
Self-rating: Sales ability	-.15

and serving others in their career choices. They also tended to rate themselves low in sales ability. They tended to have read books outside of class and to have taken part in demonstrations. Finally, the high scorers tended to come from high status families, as measured by parental education and income. Thus, those who scored high on the GRE-Verbal seemed to be academically successful and academically oriented.

GRE-Q. High scorers on the quantitative part of the GRE were likely to think of themselves as having related talents: mathematical, scientific, mechanical, and scholarly ability. They also had general confidence in their academic ability. They tended to have exemplified their talents by obtaining high grades and by holding assistantships. As freshmen, they more often chose careers in science and engineering, and less often chose careers in education, arts and humanities, or social science. As may be suggested by this pattern of vocational choices, the high scorers tended to place little importance on working with or serving people, and rated themselves low in sympathy for others and skill with people. In the classical division of interests they thus seem to be oriented toward ideas and things, not people.

In line with their academic capability, they tended to have thought about advanced training at a young age, and had high degree aspirations. They also applied to, were accepted by, and were offered aid by more institutions than other students.

Finally, men tended to obtain higher scores than women. This difference may be due to initial differences in interest, subsequent rewards and training, and the pattern of courses taken.

Table 8.3

Correlates of Scores on GRE-Quantitative (Self-Reported)

Variable	r
Self-rating: Mathematical ability	.61
Self-rating: Scientific ability	.47
Sex (1 = Male, 2 = Female)	-.35
Working with people important in vocational choice	-.35
Self-rating: Mechanical ability	.30
Freshman vocational choice in science field	.29
Freshman vocational choice in engineering field	.29
Number of institutions offering financial aid	.28
Age when first thought of advanced study	-.26
Undergraduate GPA in all courses	.25
Self-rating: Scholarship	.24
Level of degree aspiration	.23
Have the ability to complete graduate or professional school	.22
Being of service to others important in vocational choice	-.22
Number of institutions accepting	.22
Would rank among the best in college	.20
Freshman vocational choice in education field	-.20
Self-rating: Sympathy for others in trouble	-.19
Number of institutions applied to	.17
Freshman vocational choice in arts and humanities field	-.16
Freshman vocational choice in social science field	-.16
Self-rating: Skill in relating to others on an individual basis	-.16
Held an assistantship in a scientific field	.16
Undergraduate GPA in courses in field	.15

LSAT. There were fewer correlates with Law School Admission Test scores than with the GRE scores, but they form a basically similar pattern. That is, we once again find that high scorers tended to have high grades, have confidence in their academic ability,and rate themselves highly in a variety of academically relevant areas including scholarship, mathematical ability, scientific ability, writing ability, and reading ability. High scorers tended to come from well-to-do and well-educated families, and tended to have thought of advanced work at a young age. They had high degree aspirations and applied to and were accepted by more institutions (but were not more likely to have received financial aid). The students scoring high on the LSAT also tended to downplay the importance of security and salary in their choices. After this,the correlates with LSAT scores differed from the correlates with GRE scores. Jewish students appear to have obtained higher scores and Roman Catholic students obtained lower scores. There were also negative correlations with ratings of the importance of working with people or making a contribution to knowledge in choosing a vocation, and with the self-rating of the ability to relate to others on an individual basis. It is difficult to explain all these surprising results, but the negative relations with the variables involving relations with others may be similar to those for the GRE-Q. That is, many of those who are oriented toward ideas may not be oriented toward people. The differences between religious groups are more difficult to explain, but probably are related to the differences noted in the section on background variables.

MCAT-Science. Relatively few variables correlated with Medical College Admission Test-Science scores, but they are quite plausible: high grades, confidence in academic capacity, and high self-ratings on scholarly, scientific, and mathematical ability. And, as with the other tests, the high scoring students

Table 8.4

Correlates of LSAT Scores (Self-Reported)

Variable	r
Undergraduate GPA - all courses	.30
Number of institutions accepting	.26
Level of degree aspiration	.25
Self-rating: Scholarship	.25
Self-rating: Mathematical ability	.24
Would rank among best in college	.23
Have the ability to complete graduate or professional school	.23
Undergraduate GPA - courses in major	.22
Security important in vocational choice	-.21
Father's education	.20
Mother's education	.20
Self-rating: Scientific ability	.20
Number of institutions applied to	.20
Self-rating: Writing ability	.19
Age when first thought of advanced study	-.19
Parental income	.18
Religion: Jewish	.18
Self-rating: Reading ability	.18
Working with people important in vocational choice	-.17
Religion: Roman Catholic	-.16
Making a contribution to knowledge important in vocational choice	-.16
Improving chances for high salary important in deciding to go on	-.16
Self-rating: Ability to relate to others on individual basis	-.15

Table 8.5

Correlates of

MCAT - Science Scores (Self-Reported)

Variable	r
Self rating: Scientific ability	.41
Undergraduate GPA - All courses	.38
Undergraduate GPA - Courses in field	.33
Number of institutions accepting	.32
Self-rating: Scholarship	.28
Self-rating: Mathematical ability	.26
Level of degree aspiration	.23
Would rank among best in college	.20
Number of institutions applied to	.19
Religion: Jewish	.18
Could get A's in graduate or professional school	.15
Opportunities for leadership important in vocational choice	-.15

tended to have high degree aspirations and applied to and were accepted by more institutions. They were also frequently Jewish. They tended to place a low value on opportunities for leadership in their choice of a vocation. Again, the high scorers seem to be academically able and academically oriented students.

Comparisons of Correlates

To gain a perspective on the correlates presented in this chapter, the correlations of grades and the test scores with critical background variables and with freshmen vocational choices are presented in Table 8.6 and 8.7. Freshman vocational choice was used to provide an indication of the interests and probable course choices of students. That is, a student whose original choice was in a physical science probably took some college courses in mathematics and science. We are primarily interested in students' exposure to various courses in this analysis. This indication would not be provided for all students if we used senior choices in this analysis.

First we can see that, consistent with a great deal of research, women tended to get higher grades and lower test scores; the correlation with the verbal score of the GRE was negligible, the correlation with the quantitative score fairly sizable. The correlation seems to become increasingly negative as the proportion of mathematical items increases. Given the small magnitude of the samples on which the correlations with race are based and the resulting instability of the obtained correlations, it can be said that there is essentially no correlation between race and undergraduate grades and test scores for the population on which the study was based. The socioeconomic indicators--parents' education and income--had small positive correlations with grades. The correlations with test scores were consistently slightly higher, particularly with two most "verbal" scores--the GRE Verbal scores and the LSAT scores. The effects of social class, then, may be strongest on verbal and reading skills. The reverse of the last pattern occurs with the parental

and peer encouragement items: grades had consistently higher correlations with fathers', mothers', and friends' encouragement of advanced study than the test scores. A student who gets good grades might be expected to receive encouragement from parents and peers, even if his or her test scores were low. The correlations with religion were generally negligible except that being raised a Catholic had negative correlations and being raised Jewish had positive correlations with LSAT and MCAT scores. We discussed the possible basis for such results in Chapter 2. Finally, undergraduate grades are positively related to the tests. The MCAT had the highest correlations, the GRE-Quantitative score the lowest. There may be many reasons for these differences. For example, the MCAT Science test may be the most like an achievement test, and the GRE-Mathematical the least, etc.

The correlations of original vocational choices and grades and test scores are shown in Table 8.7. The patterning of the correlations suggests that students whose original vocational choices were in arts or humanities, education, or social science were more likely than other students to have slightly higher grades and slightly lower test scores, particularly on the GRE-Quantitative. Students choosing a biological or physical science field were slightly more likely to have higher grades and higher test scores, particularly GRE-Quantitative. Finally, students who had chosen engineering were slightly more likely to have lower grades and higher test scores, again particularly the GRE-Quantitative. Altogether these results suggest that the more mathematics training a student has received, the more likely he or she is to have high scores on tests that include mathematical items; the greater the percentage of such items the stronger the tendency.

What can we make of the results for these various tests? The correlates of the test scores indicated that high scorers are the kinds of students that graduate and professional school admissions committees seem to want. They are

Table 8.6

Summary of the Correlates of Students' Background with Grades and Test Scores

Background Characteristic	Correlation with					
	Grades in All Courses	Grades in Major Field	GRE-V	GRE-Q	LSAT	MCAT
Sex*	.11	.12	-.02	-.35	-.08	-.12
Race**	-.04	.00	-.04	-.01	-.09	-.09
Father's Education	.11	.08	.21	.14	.20	.13
Mother's Education	.09	.07	.19	.11	.20	.12
Parents' Income	.05	.04	.19	.11	.18	.11
Father's Encouragement of Graduate study	.12	.11	.03	.04	.05	.08
Mother's Encouragement of Graduate study	.13	.12	.01	.00	.05	.08
Friends' Encouragement of Graduate study	.12	.13	-.01	.01	.05	.01
Raised as Protestant	-.06	-.03	-.03	.01	.01	-.03
Raised as Roman Catholic	-.01	-.03	-.03	-.06	-.16	-.13
Raised Jewish	.01	.07	.09	.03	.18	.18
Grades in All Courses		.68	.29	.25	.30	.38
Grades in Major Field	.68		.23	.15	.22	.33

*Male = 1, Female = 2

**1 = White, 2 = Black

Note: Correlations are Pearson product moment, except when bivariate variables are used, where they are point-biserial.

Table 8.7

Summary of Correlates of Students' Vocational Choice with Grades and Test Scores

Vocational Choice	Correlation with					
	Grades in All Courses	Grades in Major Field	GRE-V	GRE-Q	LSAT	MCAT
Agriculture	-.07	-.04	-.06	-.01	*	*
Arts or Humanities	.04	.07	.06	-.16	-.01	-.04
Biological or Physical Science	.08	.04	.10	.29	.09	.11
Business	-.05	-.06	-.03	-.04	.02	-.13
Education	.03	.05	-.10	-.20	-.07	-.05
Engineering	-.06	-.09	-.03	.29	.05	.02
Health Fields	.01	-.01	-.05	-.06	-.04	.06
Social Science	.02	.04	-.02	-.16	.00	*
Housewife	.02	.02	*	*	*	*
Undecided	.05	.03	.08	.06	.06	.02

Note: See note on Table 8.6.

*N too small to allow computation.

academically successful, value academic achievement, and seem ready to take on postgraduate work. From these results one might conclude that admissions tests are meeting their intended purpose: helping institutions select students who have characteristics that indicate they would succeed in the institution's academic programs. At the same time, however, several of the tests were correlated with some background characteristics that seem unrelated to this purpose. Students who were from better educated families, wealthier homes, and Jewish families tended to score slightly higher. Women sometimes scored slightly lower than men. Does this indicate that the tests are biased? It is hard to give an unequivocal answer to that question because of the vagaries in the definitions of bias. But it should be pointed out that small ability differences between SES and ethnic groups have been found even after controls for opportunities, experiences,and schooling are applied to similar data. Put simply, there is some evidence that there are small differences between social groups in their basic capacity. (See the reports and discussions in Mosteller and Moynihan, 1972.) It seems unrealistic not to expect some differences between groups.

The tendency of women to score lower on tests that include mathematically-oriented items is consistent with a great deal of research (Maccoby, 1966). Men and women's academic capacities develop slowly over their lifetimes and are subject to many environmental influences. It is very difficult to untangle the web and determine whether influences or basic capacity are more important. However the tests may provide reasonable estimates of students' mathematical skills and knowledge <u>at the time</u> they take the test, whatever the sources of their skill and knowledge.

In sum, the tests seem to be doing their intended job. Whether they are also reflecting irrelevant characteristics of students is a matter of controversy and requires further research.

Chapter 9

THE CORRELATES OF CAREER CHOICES AND FINANCIAL AID

In the previous chapters we have reported many differences between students with different postgraduate plans. In this chapter we shall try to identify the factors that are most closely associated with seniors' plans. In addition, we shall examine seniors' characteristics that are associated with receiving offers of financial aid.

In order to isolate the variables that best distinguished students with different plans, two steps were followed. First we correlated all the variables that seemed to distinguish each group with seniors' postgraduate plans and with each other. This procedure allowed us to identify the characteristics that were most strongly correlated with each choice. In this way the variety of possible correlates was considerably reduced. It is possible for a variable to vary considerably between the groups and yet not be highly correlated with any single choice. The second step was to use the results of the correlations from the first step and then use each postgraduate plan as a criterion. Then, to identify the factors that are most strongly associated with each choice, step-wise multiple regression analyses were employed. This statistical procedure shows how much each additional piece of information adds to the multiple correlation. It can help us understand when two or more variables are assessing approximately the same thing and when they are assessing different things. In addition, the size of the multiple correlation allows us to assess how well we could predict the choices from the data we had.

The problem with using multiple regression for the present purpose is that with dichotomous dependent variables, the more extreme the split (i.e., the more it differs from .50) the less accurate and, generally, the lower the correlation. Furthermore, when many variables are used with a large number of cases, some will be significant and appear in the final equations as an artifact of the technique. Thus, the multiple correlations must be considered with these limitations in mind.

The criteria used here were the general level of degree aspiration (where the bachelor's was scored 1, master's scored 2, and doctoral or equivalent professional degree scored 3); planning to work full-time; planning to pursue graduate study in the arts or humanities; planning to pursue graduate study in the social sciences; planning to go to law school; planning to go to medical school; and being offered financial aid from a graduate institution. In all the tables, only correlations of .10 or higher were reported.

Level of Degree Aspiration. A long line of research has been devoted to understanding how and why students aspire to advanced degrees. Much of this research has been concerned with the influence of college environments on degree aspirations--e.g., Thisthletwaite (1960, 1966) and Astin, (1962, 1963). Astin and Panos (1969) summary presents the latest views of this research:

> The best single predictor of the student's final level of educational aspiration is his initial statement of educational plans. Men are relatively more likely than are women both to have an initially high level of aspiration or to raise their aspirations during the four years. Students with superior academic records in high school are more likely to raise their educational aspirations after entering college than are students with poorer academic records....Analyses of college effects which use the institution as the unit of analysis in controlling differential student inputs indicate that the different effects of college are mediated by environmental variables which are almost wholly dependent on the characteristics of the entering students, who are differentially recruited into the various institutions.

The correlational results shown in Table 9.1 provide evidence of a relation between level of educational aspiration and early consideration of, and

Table 9.1

Correlates of Level of Degree Aspiration

(Highest degree sought)

Variable	r
"I have the ability to complete graduate or professional school"	.43
Age when first considered advanced training	-.37
"I would rank among best in graduate or professional school"	.36
"I would be able to get A's in graduate or professional school"	.35
Self-rating: scholarship	.33
Mother encouraged attendance at graduate or professional school	.32
Friends encouraged attendance at graduate or professional school	.31
Undergraduate GPA -- in all courses	.31
Father encouraged attendance at graduate or professional school	.30
Age when finally decided about advanced training	-.30
Undergraduate GPA -- in field	.27
"I would rank among best in my college"	.27
LSAT score (self-reported)	.25
Self-rating: scientific ability	.24
GRE-Verbal score (self-reported)	.23
GRE-Quantitative score (self-reported)	.23
MCAT-Science score (self-reported)	.23
Desire to contribute to knowledge important in vocational choice	.22
Self-rating: ability to act when limited facts are available	.20
Self-rating: writing ability	.20
Self-rating: speaking ability	.19
Self-rating: memory	.19
Sex: male	.19
Participating in a demonstration	.18
Held an assistantship in a scientific field	.18
Independence important in vocational choice	.18
Self-rating: reading ability	.18

Stepwise Multiple Regression Results

Variable	R	Final Weight	F-value
"I have the ability to complete graduate or professional school"	.430	.303	4577
Age when first considered advanced training	.539	-.259	4090
Friends encouraged attendance at graduate or professional school	.575	.179	3283
Desire to contribute to knowledge important in vocational choice	.591	.145	2680
Sex (Male = 1, Female = 2)	.608	-.169	2345
Undergraduate GPA -- in all courses	.627	.164	2160

decisions about, advanced education. Parents and peers tend to have encouraged the graduate or professional school plans of those seeking advanced degrees. The students aspiring to higher degrees expressed confidence in their academic abilities and rated themselves high in such areas as scholarship, scientific ability, writing ability, memory, and reading ability. Along the same lines, degree aspiration was correlated with the desire to contribute to knowledge and holding an assistantship in a scientific field, both indicators of involvement with the life of the mind. There was also a cluster of correlates suggesting that the student aspiring to a higher degree was generally self-confident and assertive: self-ratings of ability to act when limited facts are available, speaking ability, having participated in a demonstration, and the importance of independence in a vocation. Finally, men tended to have higher degree aspirations than women. We should explain here that variables such as "I have the ability to complete graduate or professional school" were part of a series of statements about the student's attitudes toward his academic abilities. The replies of each group were not presented earlier in this report because they seemed most relevant in the context of this chapter.

To summarize, many of these correlates indicate the primacy of academic talent and self-confidence in seeking advanced degrees. Other correlates suggest long-term encouragement and commitment to advanced education.

The results of the stepwise multiple regression analyses are also shown in Table 9.1. Some variables, such as the graduate or professional school admissions tests were not included in the multiple regression analyses in this chapter because they were available only for a minority of students. Furthermore, simply by taking the test a student has indicated a desire to continue his education. Thus, the correlations of the tests with various plans are, to some extent,

artifacts of the plans themselves and were not included in the multiple regression analyses in this chapter, although they are shown in the regular correlations for informational purposes. The general picture presented by the multiple regression results is much like the one presented by the regular correlations. The results again underline the importance of self-confidence, early consideration of advanced training and the encouragement of one's peers. It is striking that both sex and undergraduate grades enter the equation, but with relatively moderate weights. Probably students who are confident of their abilities base their confidence, at least partly, on their academic performance. Furthermore, as will be reported elsewhere, women have less confidence in their abilities, and receive less encouragement from their peers. In any case, seniors who aspired to advanced degrees were confident of their abilities and had thought about advanced training for a long time. Their friends seemed to have confidence in their ability to handle advanced work. They were good students and hoped to contribute to knowledge as well as to study it.

Planning to Work. The correlates of planning to work full time are almost the mirror image of the correlates of the level of degree aspiration. As shown in Table 9.2, the prospective workers tended to have received lower grades, rated themselves lower on such academically related abilities as scholarship, scientific ability, writing ability, and expressed less confidence in their academic ability in a variety of statements. They also tended to score lower than other students when they took tests for graduate or professional study. Their parents and friends less often encouraged them to pursue advanced study. Perhaps the lack of encouragement led them to think about and reach a decision about advanced study at a relatively late age. They less often applied for advanced study and when they did apply they were less likely to be accepted or to be offered financial aid. Of course, that may be one reason some students

Table 9.2

Correlates of Planning to Work Full-Time

Variable	
Highest degree sought	-.34
Number of institutions applied to	-.30
"I have the ability to complete graduate or professional school"	-.23
Self-rating: scholarship	-.23
Sex: female	.23
Undergraduate GPA -- in all courses	-.22
Self-rating: scientific ability	-.20
Age when first considered advanced study	.19
MCAT -- Science score (self-reported)	-.19
Friends encouraged attendance at graduate or professional school	-.19
Father's education	-.18
Number of institutions accepting	-.13
GRE-Verbal (self-reported)	-.17
Number of times changing vocational choice	-.17
Mother encouraged attendance at graduate or professional school	-.16
Participated in a demonstration	-.16
Father encouraged attendance at graduate or professional school	-.15
Marital status*	.15
Freshman vocational choice in education field	.14
Mother's education	-.14
"I would be able to get A's in graduate or professional school"	-.14
"I would rank among best in graduate or professional school"	-.14
Number of institutions offering financial aid	-.14
Friends encouragement of advanced study	-.13
Parental income	-.13
Self-rating: writing ability	-.12
Security important in vocational choice	.12
Age when finally decided about advanced study	.12
Chances of improving salary important in decision about advanced study	.11
Independence important in vocational choice	-.11
Held assistantship in scientific field	-.11
I would rank among best in my college	-.11
Undergraduate GPA -- in field	-.10

Stepwise Multiple Regression Results

Variable	R	Final Weight	F-value
Sex (Male = 1, Female = 2)	.230	.247	1117
Undergraduate GPA -- in all courses	.337	-.148	1248
Number of times changing vocational choice	.376	-.147	1094
Friends encouraged attendance at grad. or prof. school	.404	-.151	977
Fathers' education	.431	-.114	911
Parents encouraged attendance at grad. or prof. school	.447	-.112	833
Marital status*	.461	.114	770
Self-rating: scientific ability	.466	-.088	691

*1=single, 2=engaged, 3=married, no children, 4=married, one or more children

plan to work, although the analyses presented earlier in this report suggested that most students who planned to work were uninterested in advanced study at the time they completed the survey.

There were a number of correlates that shed light on the hinderances to advanced study: women were more likely to plan to work, as were married students and students from families of low socioeconomic status. Similar correlates have been reported by many researchers, including Davis, 1965; Astin and Panos, 1969; Prediger, 1970; and Sewell, 1971.

Students whose freshman vocational choice was in education and who seldom changed their major were more likely to plan to enter the work force immediately. Students who planned to work also had work values that were consistent with their decisions: they placed relatively greater emphasis on security and income, and less on independence.

Plainly, students decide to enter the full-time work force for a variety of reasons. One of the most important must be a history of less success in academic activities, and less academic talent than students who continue on. But students' motivations must be strongly involved--seniors who planned to work seemed to place less value than other students on academic activities and come from families which put less emphasis on academic accomplishment. The students who planned to work also perceived themselves as having less academic talent and fewer chances of being successful in further academic activities. Many future workers thus seemed to define themselves as nonacademic persons, and made their choices accordingly. Of course, these self-definitions may have the effect of self-fulfilling prophesies.

The results of the stepwise multiple regression analyses are also shown in Table 9.2. The highest degree sought and the number of institutions students had applied to were not used in the multiple regression analyses because their

correlations may have been a little artificial. That is, a student who has applied to an institution or who has high degree aspirations would obviously be less likely to indicate a plan to work. The multiple regression results indicate the various reasons for working: being a women, poor grades, retention of an early career choice, peer influences, parents'education and influence, being married, and self-concepts of ability. These reasons suggest a life history of lack of encouragement of educational aspirations either because of the student's sex, peers or background, as well as with poorer academic performance. The negative weight for the number of times a senior had changed his vocational choice may indicate his confidence in his early career choice and his lack of interest in changing his mind and seeking a higher degree. Without such interest there is little point in going to graduate or professional school. It is clear that students who planned to work had received less encouragement for their educational aspirations and had many good reasons for working.

Planning Graduate Work in the Arts or Humanities. The correlates of plans for graduate work in the arts or humanities shown in Table 9.3 present a familiar picture of students who rate themselves high in relevant abilities (creativity, artistic and writing ability) who have been rewarded for their work by faculty encouragement, prizes, or grades, and who began college with a career in arts or humanities in mind. The correlations may be low because of the relatively small proportion of the sample who planned graduate study in arts or humanities.

The size of the multiple correlation is also relatively small. As others (e.g., Astin & Panos, 1969) have found, it is difficult to identify students who plan careers in the arts or humanities. The results indicate the relevance of a long-term interest in the field, faculty encouragement, and a self-conception of oneself as able in creative areas.

Table 9.3

The Correlates of Planning to Pursue Graduate Work in the Arts or Humanities

Variable	r
Freshman major in arts or humanities field	.21
Freshman vocational choice in arts or humanities field	.19
College faculty encouraged attendance at graduate or professional school	.14
Self-rating: creativity	.12
Highest degree sought	.11
Undergraduate GPA -- in all courses	.11
Self-rating: artistic ability	.11
Self-rating: writing ability	.10
Self-rating: scientific ability	-.10
Won prize in field	.10

Stepwise Multiple Regression Results

Variable	R	Final Weight	F-value
Freshman major in arts or humanities field	.210	.119	923
College faculty encouraged attendance at graduate or professional school	.250	.123	667
Self-rating: creativity	.263	.088	496
Self-rating: scientific ability	.273	-.090	402
Undergraduate GPA -- in all courses	.284	.081	351
Freshman vocational choice in arts or humanities	.292	.084	309

Planning Graduate Work in the Physical or Biological Sciences. The correlates of planning graduate work in the physical and biological sciences (shown in Table 9.4), present a consistent picture. Future science graduate students tended to have been interested in science at least since they were college freshmen. They had been rewarded by assistantships and encouraged by college faculty. Of course, future graduate students also tended to be high scorers on tests, to be academically successful, to be confident of their academic ability, and to rate themselves high on such relevant abilities as scholarly, scientific, mathematical, and mechanical ability. They also tended to place less emphasis than other students on working with people and more emphasis on contributing to knowledge. To summarize, the future science graduate student is an able student who is confident of his or her abilities and has a strong interest in his or her field.

The multiple regression results confirm this summary and also emphasize the importance of gaining the attention and encouragement of the science faculty.

Planning Graduate Work in the Social Sciences. As shown in Table 9.5, prospective graduate students in the social sciences tended to have planned an advanced degree, were encouraged by faculty and friends to attend graduate school, and were confident of their abilities. They also tended to have planned a career in social science as college freshmen. This description is less certain than that of other groups because of the relatively small size of the correlations and the relatively small number of variables. The results may be due to the small percentage of students choosing graduate work in the social sciences, or to the heterogeneity of social sciences--from phsiological psychology

Table 9.4

Correlates of Planning to Pursue Graduate Work
in the Physical and Biological Sciences

Variable	r
Self-rating: Scientific ability	.30
Held assistantship in scientific field	.27
GRE-Quantitative	.27
Freshman vocational choice in science	.26
Highest degree sought	.21
Interest in working with people important in vocational choice	-.20
Self-rating: mathematical ability	.19
"I would be able to get A's in graduate or professional school"	.14
Undergraduate GPA -- in all courses	.13
Desire to contribute to knowledge important in vocational choice	.13
Self-rating: mechanical ability	.12
Self-rating: scholarship	.12
"I would rank among best in graduate or professional school"	.12
"I have the ability to complete graduate or professional school"	.11
College faculty encouraged attendance in graduate or professional school	.11
"I would rank among the best in my college"	.10

Stepwise Multiple Regression Results

	R	Final Weight	F-value
Self-rating: scientific ability	.300	.169	1978
Held assistantship in scientific field	.359	.175	1475
Freshman vocational choice in science	.398	.160	1253
Interest in working with people important in vocational choice	.411	-.126	1017
Desire to contribute to knowledge important in vocational choice	.423	.089	874
College faculty encouraged attendance in graduate or professional school	.427	.058	742

Table 9.5

Correlates of Planning to Pursue Graduate Work
in the Social Sciences

Variable	r
Freshman major in social science	.15
Freshman vocational choice in social science	.13
College faculty encouraged attendance at graduate or professional school	.11
"I would be able to get A's in graduate or professional school"	.11
Friends encouraged attendance at graduate or professional school	.10
Self-rating: scholarship	.10
Student activism index	.10

Stepwise Multiple Regression Results

Variable	R	Final Weight	F-value
Freshman major in social science	.150	.137	460
Academic self-conception scale	.184	.087	351
College faculty encouraged attendance at graduate or professional school	.211	.086	312
Student activism index	.220	.062	254
Friends encouraged attendance at graduate or professional school	.227	.061	218

to econometrics to action sociology to clinical psychology. Social science includes many kinds of people.

The multiple correlation was also small, and the mutliple regression results only confirm the difficulty others have had in predicting who will plan a career in the social sciences (e.g., see Astin and Panos, 1969). In passing, we should explain that the Academic Self-conception Scale is composed of items such as "I have the ability to complete graduate or professional school." The single items have been used in most analyses because they were usually more efficient than the scale. The Student Activism index is based on the items listed in Table 3.2 under Political Activism.

Planning to Go to Law School. The correlates of planning to study law are shown in Table 9.6. The prospective law students tended to be bright males who came from families (frequently Jewish) who encouraged advanced education. They considered advanced training relatively early, entered college with law in mind, but were not encouraged to seek further training by their colleges' faculty. In additon they seemed to try to ensure their chances for further education by applying to many institutions. They tended to have confidence in their academic ability, as well as their writing ability, scholarship, leadership ability, and ability to act when limited facts are available, all useful talents for law. Finally, prospective law students tended to voice an interest in status, prestige, and income as reasons for their choice of profession.

This correlational portrait is similar to various stereotypes of law students, both favorable and unfavorable. What is clear is that law students, like students planning other kinds of advanced training, are bright and confident that they have the ability to succeed in their advanced study. Strikingly,

Table 9.6

Correlates of Planning to Pursue the Study of Law

Variable	r
Freshman vocational choice of law	.34
LSAT score (self-reported)	.20
Number of institutions applied to	.19
"I have the ability to complete graduate or professional school"	.18
College faculty encouraged attendance at graduate or professional school	-.15
Age when student first thought of advanced training	-.14
Sex: male	.13
Father encouraged advanced training	.13
Mother encouraged advanced training	.12
Would rank among best in class	.12
Status, prestige important in vocational choice	.12
Self-rating: writing ability	.12
Freshman major in prelaw	.12
Self-rating: ability to act when limited facts are available	.11
High income important in vocational choice	.11
Religion of family: Jewish	.11
Self-rating: leadership ability	.11
Self-rating: scholarship	.10

Stepwise Multiple Regression Results

Variable	R	Final Weight	F-value
Freshman vocational choice of law	.340	.342	2614
College faculty encouraged attendance at graduate or professional school	.384	-.192	1726
"I have the ability to complete graduate or professional school"	.424	.157	1460
Age when first thought of advanced training	.439	-.112	1192
Status and prestige important in vocational choice	.445	.076	989

however, seniors who planned to study law were not likely to have attained markedly higher grades than other students. Perhaps this is due to the equally high performance of students in other fields and the great numbers of student not planning further education who also have high grades.

The results of the stepwise multiple regression results are also shown in Table 9.6. LSAT scores were not included in this analysis for the reasons mentioned earlier. The multiple regression results suggest that seniors who had thought about and then chosen law at a relatively young age were more likely to plan actually to enter law school. Prospective law students were also confident of their ability, and seemed to desire the kind of status commensurate with their self-conception. The negative weight for faculty encouragement may be due to the relative lack of concern for specialized academic affairs we have found to characterize future law students throughout the results. Furthermore, faculty members in particular specialties such as political science or economics are more likely to be on the lookout for good prospects for graduate study in their fields. They may not be nearly so interested in a student who wants to go into law, especially one who voices no outstanding interest in their area.

Planning to Go to Medical School. The correlates of planning to enter medical school are shown in Table 9.7. The future medical student tended to have decided on medicine at an early age, and was encouraged to try for an advanced degree by his or her family and professors. He or she attained high grades and test scores, and often held assistantships. He or she also tended to have confidence in his or her academic abilities. (In all of these sentences "he or she" has been used, although men were more likely to plan to go to medical school.) Finally, the prospective medical student tended to claim to reject

Table 9.7

Correlates of Planning to Pursue the Study of Medicine

	r
Freshman vocational choice of medicine	.42
Age when finally decided about advanced training	-.27
Age when first considered advanced training	-.26
MCAT-Science score (self-reported)	.26
Highest degree sought	.24
Self-rating: scientific ability	.22
Freshman major in pre-med	.20
"I have ability to complete graduate or professional school"	.16
Undergraduate GPA -- in all courses	.15
Mother encouraged attendance at graduate or professional school	.14
Held assistantship in scientific field	.14
Chances for a good salary important in choosing to pursue advanced study	-.14
Father encouraged attendance at graduate or professional school	.13
Being of service to others important in vocational choice	.12
Self-rating: mathematical ability	.12
Self-rating: scholarship	.11
College faculty encouraged attendance at graduate or professional school	.11

Stepwise Multiple Regression Results

Variable	R	Final Weight	F-value
Freshman vocational choice of medicine	.420	.392	4283
Age when first considered advanced training	.503	-.249	3389
Parents encouraged attendance at graduate or professional school	.517	.103	2426
Chances for a good salary important in choosing to pursue advanced study	.525	-.096	1904
Self-rating: scientific ability	.534	.111	1597
Being of service to others important in vocational choice	.540	.078	1309

the financial advantages of pursuing medicine and to emphasize the service one can provide to others.

These results are generally consistent with those of other investigators, such as Davis (1965) and Astin and Panos (1969), in presenting a picture of bright, service-oriented students who have the backing of their families. Earlier studies also found, however, that prospective medical students tended to come from well to do families and that Jewish students were more likely to plan to go to medical school--two correlates that did not appear here. To some degree, the failure of some results to appear is due to the statistical restrictions when two low probability conditions are correlated--for example, when few students plan to enter medicine, and few students are Jewish. Another possibility is that the effect is still there--in fact, the analyses reported in Chapter 2 indicate that prospective medical students are more likely to come from well-to-do families and Jewish families--but that the effect is relatively minor compared to other effects.

The multiple regression results suggest that the most salient correlates of planning to go to medical school were an early initial choice of medicine, parental encouragement, greater concern for service than money, and considering oneself as able in science.

Comparison of Correlates

To provide a general picture of the importance of the variables described in the earlier chapters, the correlates between the variables and six senior plans are shown in Table 9.8. In this case it is particularly interesting to compare the correlates. For example, a women is more likely than a man to plan to work or study the arts or humanities, and less likely to plan to study a hard science, law or medicine. Married students are more likely than single students to plan to work and less likely to plan any form

of advanced study. In contrast, students of higher socio-economic status are less likely to work and more likely to plan some form of advanced study. The same pattern holds for students who were encouraged by their parents or friends. Religious upbringing seems to have little relation to plans, except that those raised in Jewish homes are a little more likely to plan to study law or medicine. Finally, the earlier a student thought of and decided to pursue further education, the less likely he or she was to plan to work or study the arts or humanities, and the more likely to study in another area, particularly medicine.

Grades, of course, are negatively related to plans for work, and positively related to plans for advanced study. Holding an office in a student organization was unrelated to seniors' plans. Holding a scientific assistantship was negatively related to plans for work and positively related to plans to study a hard science or medicine. Students who have made few changes in their vocational choices were more likely to plan to work.

The correlations between students' freshman vocational choices and senior plans suggest several generalizations. First, few of the correlations are very large except between related choices and plans. Second, there are slight patterns of attraction between fields. For example, future graduate students in the hard sciences were more likely to come from freshmen who chose careers in a hard science field and less likely to come from the arts or humanities, business or law or social science. Future workers were more likely to come from freshmen who planned careers in education and less likely to come from those who planned careers in a hard science. These relations could be studied in much greater detail, as Davis (1965a, 1965b) and Holland (1968) have done.

Simply looking at the number of negative and positive correlations in each column in the self-rating section of Table 9.8 suggests that the seniors who plan to work generally have lower self-regard than those who plan advanced study. The correlations are generally logically consistent, such as that between planning advanced study in a hard science and the self-rating on scientific ability. However, it is striking that such important traits as skill in relating to others and creativity are not particularly related to seniors' plans.

The patterns of correlations of work values are also instructive. Those who seek high incomes seem to move toward law and away from the arts and humanities; those who value independence were less likely to plan to work and more likely to plan to study law or medicine; those wishing to serve others were attracted to medicine; those valuing security were attracted to work. The seniors wishing to be leaders look to the study of social science or law as the route. Those who want free time in their jobs logically tended to avoid medicine. Students planning to study arts or humanities tended to believe they had special talents to use in their careers. Those who wished to work with people were more likely to be found among those planning to work and those planning to study the social sciences or law. Finally, those interested in status were often attracted to law, and those who wished to contribute to knowledge were attracted to the biological or physical sciences.

By and large, a high opinion of ones' academic ability was often found among those planning advanced study, and less often found among those planning to work. Attitudes about the importance of grades or the quality of one's own work were surprisingly unrelated to seniors' plans.

Table 9.8

Correlations Between Senior Plans and Other Variables

Variables	Plans: Work	Graduate Study in: Arts-Hum.	Biol. Phy. Science	Social Science	Law School	Medical School
A. Background Variables						
Sex (1=male, 2=female)	.18	.07	-.09	.02	-.13	-.10
Marital status	.15	-.04	-.02	-.01	-.05	-.06
Fathers' education	-.18	.04	.04	.03	.07	.08
Mothers' education	-.14	.04	.03	.02	.07	.07
Parental income	-.13	.01	-.01	.01	.10	.07
Fathers' encouragement	-.15	.07	.08	.06	.13	.13
Mothers' encouragement	-.16	.09	09	.08	.12	.14
Friends' encouragement of study	-.13	.09	.09	.10	.10	.10
Raised as Protestant	.04	-.01	.00	-.02	-.06	-.03
Raised as Roman Catholic	.02	.00	02	-.01	.03	.00
Raised as Jew	-.09	.03	.00	.04	.11	.08
Age when first considered advanced study	.19	.07	-.04	.05	-.14	-.26
Age finally decided about advanced study	.12	.08	-.02	.07	-.09	-.27
B. College Experiences						
GPA -- all courses	-.15	.09	.13	.01	.08	.15
GPA -- in major field	-.10	.11	.10	.10	.06	.09
Officer in student organization	-.05	.02	.02	.02	.06	.02
Held assistantship in science	-.11	-.04	.27	.04	-.04	.14
Number of times changing vocational choice	-.17	.01	-.02	.07	.02	-.07
C. Freshman Vocational Choice						
Agricultural field	.02	-.03	.01	-.02	-.03	-.01
Arts or humanities field	-.01	.19	-.07	.00	-.04	-.06
Biological or physical science field	-.09	-.03	.26	.00	.04	.01
Business or law	-.02	-.04	-.09	-.02	.21	-.06
Education field	.17	-.02	-.07	-.01	-.07	-.08
Engineering field	-.00	-.07	.02	-.05	-.04	-.05
Health field	-.03	-.05	.03	-.03	.02	.31
Social science field	-.02	.02	-.06	.13	-.02	-.05
Trade -- technical field	.02	-.01	-.01	-.03	.00	-.01
Housewife	.00	.00	-.01	.01	-.01	-.01
Undecided	-.07	.01	-.01	.03	.03	-.01

Table 9.8 (Cont'd)

	Plans: Work	Graduate Study in: Arts-Hum.	Biol. Phy. Science	Social Science	Law School	Medical School
D. Self-ratings						
Writing ability	-.12	.10	-.01	.09	.11	.01
Artistic ability	-.02	.11	-.01	.00	-.04	-.01
Scholarship	-.16	.08	.12	.10	.10	.11
Scientific ability	-.13	-.10	.30	-.03	-.04	.22
Mechanical ability	-.04	-.08	.12	-.06	-.02	.06
Leadership ability	-.04	.00	-.01	.04	.11	.01
Reading ability	-.07	.05	.00	.08	.10	.02
Acting ability	-.03	.09	-.04	.02	.05	-.01
Speaking ability	-.06	.07	-.03	.06	.14	-.01
Mathematical ability	-.09	-.09	.19	-.03	.00	.12
Sales ability	.03	-.01	-.07	.00	.09	-.03
Skill in relating to others	-.03	.04	-.06	.07	.06	.01
Sympathy	-.01	.05	-.05	.05	.01	.03
Creativity	-.06	.12	.03	.03	.04	-.01
Memory	-.08	.06	.04	.04	.04	.10
Ability to act with limited facts	-.08	.03	.03	.05	.07	.11
E. Work Values						
High income	.04	-.08	-.04	-.05	.11	-.02
Independence	-.11	.04	.04	.04	.09	.08
Service to others	.04	.01	-.07	.06	.01	.12
Security	.12	-.06	-.04	-.04	.00	.04
Opportunities for leadership	.07	.03	-.08	.00	.09	-.02
Allows free time	-.04	.05	-.04	.02	-.01	-.09
Uses special talents	.01	.09	.02	.03	-.02	.01
Work with people, not things	.01	.05	-.20	.07	.03	.08
Status	.00	-.02	-.02	.00	.12	.03
Desire to contribute to knowledge	.01	.07	.13	.08	-.04	.01
F. Attitudes toward Academic Performance						
Getting good grades is the most important thing in college	.05	-.03	.01	.00	.02	.03
I would rank among the best in academic ability in my class in college	-.11	.06	.10	.06	.08	.09
I have the ability to complete the advanced work needed to become a doctor, lawyer, or univ. prof.	-.23	.05	.11	.08	.18	.16

Table 9.8 (Cont'd)

	Plans					
		Graduate Study in				
	Work	Arts-Hum.	Biol. Phy. Science	Social Science	Law School	Medical School
F. Attitudes toward Academic Performance (continued)						
Regardless how others may grade my work, I think my academic work is good	-.01	.02	.04	.04	.04	.07
I think I would be able to get mostly A's in a graduate or professional school	-.14	.09	.14	.11	.07	.07
I would rank among the best in my class in graduate or professional school	-.14	.08	.12	.09	.12	.09
Getting good grades is important only to gain admission to graduate or professional school or to get a good job	-.09	-.02	.02	.00	.05	.05

Note: Correlations are point-biserial.

Obtaining Offers of Financial Aid. Who gets financial aid? The correlational answer to this question is presented in Table 9.9. Plainly, bright, academically successful students tended to receive aid, particularly if they were in science. But in addition, aid was more likely to be offered to students who had gained the attention of their professors and who had already received such rewards as assistantships or prizes. The students offered aid also tended to perceive their own talents rather accurately in such areas as scholarship, scientific ability, mathematical ability, and their ability to get good grades. Aid winners also expressed a desire to contribute to knowledge. Finally, there was a slight tendency for aid to be offered to students from families with lower incomes. The relatively small size of this correlation provides evidence for the practice of awarding aid first on the basis of ability and second on need.

This picture is clarified by the stepwise multiple regression results. While planning graduate study in science and grades had the largest weights, family income appeared to have a weight about as large as any of the remaining variables. However, it adds only .012 to the multiple correlation. These results suggest that family income does have a bearing on who gets aid, but it is only a small factor among several. The results also show how the encouragement of peers and professors can stimulate a student to try for aid.

In this chapter we have attempted to identify some of the factors that influence seniors' postgraduate plans. In doing so, we have found that some plans had many correlates and were quite predictable, while others had few correlates and were less predictable. Perhaps this has something to do with the specificity and breadth of the fields. If we ordered the career choices

Table 9.9

Correlates of Being Offered Financial Aid for Advanced Study

Variable	r
Planning graduate study in a science field	.36
Undergraduate GPA -- in all courses	.34
Self-rating: scholarship	.33
"I would rank among the best in my college"	.30
GRE-Mathematical score (self-reported)	.28
Undergraduate GPA -- in field	.25
Held assistantship in scientific field	.25
Self-rating: scientific ability	.25
Friends encouraged attendance at graduate or professional school	.22
College faculty encouraged attendance at graduate or professional school	.22
GRE-Verbal score (self-reported)	.20
Self-rating: mathematical ability	.19
Won prize in field	.18
"I would be able to get A's in graduate or professional school"	.16
Desire to contribute to knowledge important in vocational choice	.16
Freshman vocational choice in science	.16
"I would rank among best in graduate or professional school"	.15
Highest degree sought	.12
Parents' income	-.11

Stepwise Multiple Regression Results

Variable	R	Final Weight	F-value
Planned to pursue graduate study in a biological or physical science	.360	.241	4978
Undergraduate GPA -- in all courses	.466	.216	2771
Friends encouraged attendance at graduate or professional school	.495	.111	2157
Held an assistantship in science	.510	.120	1759
Family income	.523	-.109	1503
Academic self-concept	.534	.099	1330
College faculty encouraged attendance at graduate or professional school	.543	.105	1191
Self-rating: scientific ability	.548	.085	1073

by the breadth of their curricular offerings, we would have this order from broad to specific: social science, arts and humanities, physical and biological science, law, and medicine. This is also the order of the size of the multiple correlations. Perhaps fields with broader curricula can encompass a greater variety of people.

The variety of the correlates of the plans reflects the variety of the influences on seniors' career choices. As Holland (1966) and others have written, a career choice is influenced by one's family, peers, teachers, experiences, self-conceptions, and values. We have found evidence for each of these in the preceding chapters. The correlational results and especially the multiple regression results reported in this chapter represent a summary of the previous chapters. They indicate the importance of certain variables by their appearance in many of the multiple regression results. Family, peer, and faculty encouragement frequently appeared, indicating the critical importance of interpersonal influences on career choices. General self-confidence in one's academic abilities also frequently appeared, as did more specific self-ratings that referred to specific talents that were relevant to each field. The way seniors think of themselves seems to have a considerable bearing on what they will do.

The results suggest that it may be possible to construct a model of career choice that would help us understand the temporal and logical sequence of influences on career choices. That is, by understanding how the family influences, peers, and faculty interact with abilities, academic performance, and self-conceptions we would have a much better understanding of the process by which students choose their careers. With such an understanding we should be able to change our information, counseling, and recruitment programs so that they provide the greatest benefit to students.

A Caution on Interpreting These Correlations

The purpose of presenting the correlations shown in this chapter was to bring together the evidence in earlier chapters and show a general picture of the variables associated with plans. The correlations should not be taken as highly accurate estimates of the relationships between plans and other variables. They should not be considered as predictors in the same sense tests are used to predict grades, and they should certainly not be considered as indications of causation. At best they are approximate indicators of the size of a relation, and must be examined very carefully. This is particularly true since we have used several correlational techniques in the analysis, and have included correlations which are often based on varying numbers of students. We have taken them as rough approximations of some more definitive estimations of the relationships. For example, the correlations between sex on the one hand, and plans to enter law school or to enter medical school on the other are rather small, .13 and .10, respectively. This is not to suggest that sex is a minor factor in entry to law or medical school. As shown in Chapter 6, the future students in both fields are predominantly male. Thus, if we knew that a senior, planned to study law or medicine, the changes would be quite high that we would be right if we predicted that the student would be a man. However, if we only knew that a senior was a man the chances that we would be right if we predicted that he would be planning to go to medical school would be fairly small. Thus, a students' sex is of limited value as a piece of information which would help us estimate the probabilities that a student would plan to go to medical school. However, a students' sex is a useful piece of information for understanding who goes into medicine and why. The correlational portraits presented in this chapter are thus very much like

portraits an artist using a particular technique might produce. Like a pointillest painting, the correlational portrait emphasizes certain aspects because of its technique and de-emphasizes other aspects. The person who wishes to examine the importance of a particular aspect should study that aspect in greater detail, as we have done for the variables of sex and race in Chapters 6 and 7. The person who wishes to study the causal web that leads to seniors final plans needs to use other techniques, such as path analysis. Once again, then, our purpose has been to provide a broad brush stroke statistical portrait, not a definitive photograph.

POSTSCRIPT: THE CLASS OF 1971

We began this report with a description of the times of the class of 1971. We described the flow of events and the social trends surrounding their personal and educational development. Like many others we expected that the 1971 senior was a new kind of student, at once more idealistic and socially effective than his or her counterpart in earlier years. Although we have found some evidence that these ideas may be partly true, the changes seem to be gradual and complex. For example, although it is true that more students from lower class backgrounds are attending college, the general level of education in the society has risen, so that, in fact, the average senior in our sample had better educated parents than the senior of earlier years. We also found that the values our seniors sought from their careers were little different from those Davis' seniors sought ten years earlier. Some students had actively participated in political and social programs either on or off campus. We do not have comparable figures for earlier years, but it is clear that those who are active constitute a minority of students. Generally, as far as we can judge, the students who plan to enter the fields we have studied are basically the same kinds of students who entered those fields in years past. Thus, as far as it is possible to consider such changes with information such as we have used here, it seems that the social trends of recent years have had only small effects on most seniors. However, it would seem that some students may have been strongly affected by the changes in society in the ways we suggested at the outset. It may be that this small group of idealistic pragmatic students are more common today than in earlier years. It is also probably this small portion of students that is the basis for journalistic accounts of the "new student."

The fact that we have found more "old students" than "new students" among our seniors should not blind us to the influence of the former nor the importance of the latter. The students who wish to radically change society and its institutions will almost certainly have a considerable role in shaping the future. The more typical seniors--if we may speak of the typical in a group so diverse in backgrounds, talents, plans, and educational experiences--will have as great, if not greater role. They will become the workers, professionals, and leaders of the future world. Through their desire to use their talents in their careers and through their needs to develop as whole persons, they may help create a new, and possibly better, life for themselves and society. In conclusion, perhaps the most important potential outcome of this study would be to add to our appreciation of the idealism, resourcefulness, and imagination of all of the class of 1972.

References

Astin, A. W. An empirical characterization of higher educational institutions. Journal of Educational Psychology, 1962, 53, 224-235.

Astin, A. W. Differential effects on the motivation of talented students to pursue the Ph.D. degree. Journal of Educational Psychology, 1963, 54, 63-71.

Astin, A. W. Who goes where to college. Chicago: Science Research Associates, 1965.

Astin, A. W. Two approaches to measuring students' perceptions of their college environment. The Journal of College Student Personnel, 1971, 12, 169-172.

Astin, A. W., & Panos, R. J. The educational and vocational development of college students. Washington, D. C.: American Council on Education, 1969.

Axelrod, J. What do college grades mean? In H. A. Estrin and P. M. Goode, (Eds.), College and University Teaching. Dubuque, Iowa: Brown, 1964.

Baird, L. L. Family income and the characteristics of college-bound students. ACT Research Report No. 17. Iowa City, Iowa: The American College Testing Program, 1967.

Baird, L. L. The achievements of bright and average students. Educational and Psychological Measurement, 1968, 28, 891-899.

Baird, L. L. Factors in the continuance of accomplishment from high school to college. Measurement and Evaluation in Guidance, 1969, 2, 5-18. (a)

Baird, L. L. Prediction of accomplishment in college: A study of achievement. Journal of Counseling Psychology, 1969, 16, 246-253. (b)

Baird, L. L. The relations of vocational interests to life goals, self-ratings of ability and personality traits, and potential for achievement. Journal of Educational Measurement, 1970, 7, 233-239. (a)

Baird, L. L. Overaspirers and underaspirers: Students with discrepant ability and degree plans. Paper presented at the meeting of the National Council on Measurement in Education, Minneapolis, 1970. (b)

Baird, L. L. The Student Descriptive Questionnaire: How valid is its information? How can it be used? College Board Review, 1971, 81, 10-16. (a)

Baird, L. L. The functions of college environmental measures. Journal of Educational Measurement, 1971, 8, 83-86. (b)

Baird, L. L. A critical examination of measures of college environments. College Board Review, in press.

Baird, L. L. Biographical information. Educational Testing Service, forthcoming.

Baird, L. L., & Holland, J. L. The flow of high school students to schools, colleges, and jobs. Journal of Human Resources, 1969, 4, 22-37.

Barron, F. X. Creativity and personal freedom. Princeton, N. J.: Van Nostrand, 1968.

Bayer, A. E., & Boruch, R. F. The black student in American colleges. ACE Research Report, Vol. 4, No. 2, 1969.

Beardslee, D., & O'Dowd, P. Students and the occupational world. In N. Sanford, The American College. New York: Wiley, 1962.

Becker, H. S., Geer, B., Hughes, E. C., & Strauss, A. L. Boys in white: Student culture in medical school. Chicago: University of Chicago Press, 1961.

Berdie, R. F., Pilapil, B., & Im, J. I. Entrance correlates of university satisfaction. American Educational Research Journal, 1970, 7, 251-266.

Bordua, D. J. Educational aspirations and parental stress on college. Social Forces, 1960, 28, 262-69.

Boyle, R. P. The effect of the high school on students' aspirations. American Journal of Sociology, 1966, 71, 628-39.

Centra, J. A. Comparison of three methods of assessing college environments. Journal of Educational Psychology, 1972, 63, 56-62.

Centra, J. A. Black students at predominantly white colleges: A research description. Sociology of Education, 1970, 43, 325-339.

Coopersmith, S. Antecedents of self-esteem. New York: W. H. Freeman and Company, 1967.

Cox, C. The early mental traits of 300 geniuses. Genetic studies of genius. Vol. II. Stanford: Stanford University Press, 1926.

Creager, J. A. The American graduate student: A normative description. ACE Research Reports. Vol. 6, No. 5, 1971.

Creager, J. A., & Astin, A. W. Alternative methods of describing characteristics of colleges and universities. Educational and Psychological Measurement, 1968, 28, 719-734.

Cross, K. P. The undergraduate woman. American Association for Higher Education. Research Report Number 5, March 15, 1971.

Crossland, F. E. Graduate education and black Americans. New York: Ford Foundation, November, 1968.

Davidson, H. H., & Riesman, F. Personality characteristics attributed to several occupational groups. Paper presented at the meeting of the Eastern Psychological Association, Atlantic City, N.J., 1959.

Davis, J. A. Great aspirations. Chicago: Aldine Press, 1965. (a)

Davis, J. A. Undergraduate career decisions. Chicago: Aldine Press, 1965. (b)

Dreger, R. M., & Miller, K. S. Comparative psychological studies of negroes and whites in the United States: 1959-1965. Psychological Bulletin Monograph Supplement, 70, No. 3, part 2, September, 1968.

Egerton, J. State universities and black Americans. Southern Education Reporting Service, Atlanta: 1969.

Eichhorn, R. L., & Kallas, G. J. Social class background as a predictor of academic success in engineering. Journal of Engineering Education, 1962, 52, 507-512.

Eiduson, B. L. Scientists, their psychological world. New York: Basic Books, 1962.

Featherman, D. L. The socioeconomic achievement of white religio-ethnic subgroups: social and psychological explanations. American Sociological Review, 1971, 36, 207-222.

Feldman, K. A. Measuring college environments: Some uses of path analysis. American Educational Research Journal, 1971, 8, 51-70.

Feldman, K. A., & Newcomb, T. M. The impact of college on students. San Francisco: Jossey-Bass, 1969.

Feldmesser, R. A. The positive functions of grades. Paper presented at the meeting of the American Educational Research Association, New York, 1971.

Fichter, J. H. Graduates of predominantly negro colleges. U. S. Dept. of Health, Education, and Welfare, PHS. Publication No. 1571. Washington, D.C.: U.S. Government Printing Office, 1967.

Gamson, Z. F. Performance and personalism in student-faculty relations: Departments of natural sciences and social sciences. Sociology of Education, 1967, 40, 279-301.

Grunes, W. F. Looking at occupations. Journal of Abnormal and Social Psychology, 1957, 54, 86-92.

Graduate School enrollments of negroes, other minorities. The Chronicle of Higher Education, April 12, 1971, p. 4.

Hartnett, R. T. Differences in selected attitudes and college orientations between black students attending traditionally negro and traditionally white institutions. Sociology of Education, 1970, 43 (Fall), pp. 419-436.

Herriott, R. E. Some social determinants of educational aspirations. Harvard Educational Review, 1963, 33, 157-177.

Holland, J. L. Determinants of college choice. College and University, 1959, 35, 11-28.

Holland, J. L. Creative and academic performance among talented adolescents. Journal of Educational Psychology, 1961, 52, 136-147.

Holland, J. L. The nature of student achievement: A summary and model for research and practice. In Creativity: Its assessment and measurement. Los Angeles: Educational Testing Service, 1962.

Holland, J. L. Some explorations of a theory of vocational choice: I. One- and two-year longitudinal studies. Psychological Monographs, 1962, 76, (26, Whole No. 545).

Holland, J. L. Some explorations of a theory of vocational choice and achievement: II. A four-year prediction study. Psychological Reports, 1963, 12, 545-594 (Monograph Supplement 4-V12).

Holland, J. L. Explorations of a theory of vocational choice: V. A one-year prediction study. Moravia, New York: Chronicle Guidance Professional Service, 1964.

Holland, J. L. The psychology of vocational choice. Waltham, Mass.: Blaisdell Publishing Co., 1966.

Holland, J. L. Explorations of a theory of vocational choice: VI. A longitudinal study using a sample of typical college students. Journal of Applied Psychology Monographs, 1968, 52, No. 1.

Holland, J. L., & Astin, A. W. The prediction of academic, artistic, scientific and social achievement of undergraduates of superior scholastic aptitude. Journal of Educational Psychology, 1962, 53, 132-143.

Horner, M. S. Toward an understanding of achievement - related conflicts in women. Journal of Social Forces, 1972, 28(2), 157-176.

Hoyt, D. P. Description and prediction of diversity among four year colleges. Measurement and Evaluation in Guidance, 1968, 1, 16-26.

Hunter, J. S. The academic and financial status of graduate students, Spring, 1965. Washington, D.C.: U. S. Government Printing Office, 1967.

Jackson, E. F., Fox, W. S., & Crockett, H. J. Religion and occupational achievement. American Sociological Review, 1970 35, 48-62.

Kandell, D. B., & Lesser, G. S. Parental and peer influences on educational plans of adolescents. American Sociological Review, 1969, 34, 213-23.

Key, V. O., Jr. Public opinion and American democracy. New York: Knopf, 1961.

Lipset, S. M., & Bendix, R. Social mobility in industrial society. Berkeley: University of California Press, 1959.

Maccoby, E. E. (Ed.) The development of sex differences. Stanford: Stanford University Press, 1966.

MacKinnon, D. W. The nature and nurture of creative talent. American Psychologist, 1962, 17, 484-495.

Marsh, J., & Stafford, F. Income foregone: The effects of values on pecuniary behavior. Chicago: National Opinion Research Corporation, 1966.

Matthews, D. R. U. S. senators and their world. New York: Vintage, 1960.

Maxey, E. J., & Ormsby, V. J. The accuracy of self-report information collected on the ACT test battery. ACT Research Report No. 45. Iowa City: American College Testing Program, 1971.

McDill, E., Meyers, E., & Rigsby, L. Institutional effects on the academic behavior of high school students. Sociology of Education, 1967, 40, 181-199.

Meyer, J. W. High school effects on college intentions. American Journal of Sociology, 1970, 76, 59-70.

Miller, N. One year after commencement. Chicago: National Opinion Research Corporation, 1963.

Mosteller, F., & Moynihan, D. P. (Eds.). On equality of educational opportunity. New York: Vintage Books, 1972.

Nichols, R. C. Non-intellective predictors of achievement in college. Educational and Psychological Measurement, 1966, 26, 899-915.

Nichols, R. C. College preferences of eleventh grade students. National Merit Scholarship Reports, 1966, 2, No. 9.

Pace, C. R. The use of CUES in the college admissions process. College Entrance Examination Board Report No. 2. Los Angeles: University of California, 1966.

Pace, C. R. College environments. In Ebel, R. L. (Ed.), Encylopedia of Educational Research, London: MacMillan, 1969.

Prediger, D. J. Biographical data differentiating college attenders and non-attenders at various ability levels. Paper presented at the meeting of the American Personnel and Guidance Association, Las Vegas, 1969.

Rehberg, R. A., Schaefer, W. E., & Sinclair, J. [illegible]ard a temporal sequence of adolescent achievement variables. American Sociological Review, 1970, 35, 34-47.

Rehberg, R. A., & Westby, D. L. Parental encouragement, occupation, education, and family size: Artifactual or independent determinants of adolescent educational expectations? Social Forces, 1967, 45, 362-74.

Richards, J. M., Jr., & Holland, J. L. A factor analysis of student "explanations" of their choice of college. International Journal of Educational Science, 1966, 1, 103-112.

Richards, J. M., Jr., Holland, J. L., & Lutz, S. W. The prediction of student accomplishment in college. Journal of Educational Psychology, 1967, 58, 343-355.

Roe, A. The making of a scientist. New York: Dodd, Mead, 1953.

Rogoff, N. The decision to study medicine. In R. K. Merton, G. G. Reader, & P. L. Kendall (Eds.), The student physician. Cambridge: Harvard University Press, 1957.

Rosenberg, M. Occupations and values. Glencoe, Ill.: The Free Press, 1957.

Rossi, P. H., & Coleman, J. S. (Eds.). Determinants and consequences of college choice. Chicago: National Opinion Research Center, 1964.

Schaefer, C. E., & Anastasi, A. A biographical inventory for identifying creativity in adolescent boys. Journal of Applied Psychology, 1968, 52, 42-48.

Sewell, W. H. On equality of opportunity for higher education. American Sociological Review, 1971, 36, 793-809.

Sewell, W. H., Haller, A. O., & Ohlendorf, G. W. The educational and early occupational status achievement process: Replication and revision. American Sociological Review, 1970, 35, 1014-27.

Sewell, W. H., & Shah, V. P. Socioeconomic status, intelligence and the attainment of higher education. Sociology of Education, 1967, 40, 1-23.

Sewell, W. H., & Shah, V. P. Social class, parental encouragement, and educational aspirations. American Journal of Sociology, 1968, 73, 559-572.

Sharp, L. M. Education and employment. Baltimore: The Johns Hopkins Press, 1970.

Skager, R., Holland, J. L., & Braskamp, L. A. Changes in self-ratings and life goals among students at colleges with different characteristics. ACT Research Report No. 14, Iowa City, Iowa: The American College Testing Program, 1966.

Spady, W. G. Status, achievement, and motivation in the American high school. School Review, 1971, 79, 379-404.

Stanley, J. C., Predicting college success of the educationally disadvantaged. Science, 1971, 171, 650-647.

Swift, W. J., & Weisbrod, B. A. On the monetary value of education's intergenerational benefits. Journal of Political Economy, 1965, 73, 643-49.

Taylor, C. W., & Ellison, R. L. Biographical predictors of scientific performance. Science, 1967, 155, 1075-1080.

Thielens, W. J. Some comparisons of entrants to medical and law school. In R. K. Merton, G. G. Reader, & P. L. Kendall (Eds.), The student physician. Cambridge: Harvard University Press, 1957.

Thisthletwaite, D. L. College press and changes in study plans of talented students. Journal of Educational Psychology, 1960, 51, 222-34.

Thisthletwaite, D. L. Effects of teacher and peer subcultures upon student aspirations. Journal of Educational Psychology, 1966, 57, 35-47.

Trent, J. W. Personal factors in college choice. Paper presented at the meeting of the College Entrance Examination Board, New York, 1965.

Trow, W. C. Grades and objectives in higher education. Educational Record, 1968, 49, 85-91.

Turner, R. H. The social context of ambition. San Francisco: Chandler, 1965.

Walker, K. F. A study of occupational stereotypes. Journal of Applied Psychology, 1958, 42, 122-124.

Warren, J. R. College grading practices, an overview. Washington, D. C.: ERIC Clearinghouse of Higher Education, 1971.

Weidlein, E. R. The traditionally white institutions: For most, still a long way to go. Chronicle of Higher Education, May 30, 1972.

Weisbrod, B. A. Investing in human capital. The Journal of Human Resources, 1966, 1, 5-21.

Willie, C. V., and Levy, J. D. Black is lonely. Psychology Today, March, 1972, 5, No. 10, 50-53).

Wylie, R. The self-concept: A critical survey of pertinent research literature. Lincoln: University of Nebraska Press, 1961.

Appendix A

Categorization of Undergraduate Major Fields of Study[1]

Arts and Humanities: arts and sculpture, architecture, creative writing, drama and theater, English and English literature, foreign language and literature, journalism, music, philosophy, radio-TV communications, speech, general education or liberal arts, other arts and humanities.

Biological and Physical Sciences: anatomy, astronomy, biology or genetics, botany, chemistry, earth sciences, geography, geology or geophysics, mathematics or statistics, meteorology, oceanography, physics, physiology, zoology or entomology.

Social Sciences: anthropology, economics, history, library and archival science, psychology, sociology, social work, theology and religion, other social science.

Agriculture and Forestry: agriculture, fish and game management, forestry, soil conservation.

Business: accounting, business administration, data processing, finance, industrial relations, secretarial science.

Education: counseling and guidance, elementary education, physical education, secondary education, other education.

Engineering: aeronautical, chemical or nuclear, civil, electrical or electronic, industrial, mechanical, other engineering. Also includes trade, industrial, and technical fields of aviation, construction, drafting, electricity and electronics, industrial arts, metal and machine, mechanical, and other trades.

Home Economics: home economics.

Nursing: nursing.

Other health fields: dental hygiene, dietetics, medical technology, mortuary science, occupational therapy, optometry, osteopathy, pharmacy, physical therapy, veterinary medicine, X-ray technology.

Pre-professional: pre-law, pre-dentistry, pre-medicine.

---

[1] See Table 6.6